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The Production and Management Journal Covering North America's Wood Pulp, Paper, Paperboard and Cellulose Industries

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"The Cellulose Age"

EDITORIALS

Cost of Staying in Business

Now comes the season of annual reports and, once again, it is a pleasant season. There was, in many companies, the sunshine of net sales exceeding those of the previous year—but there were also the showers represented by increasing costs which in more than one instance shaved the net income.

One of the finest discussions of this phenomenon—increased sales with slightly less net profit—is contained in the annual report for 1948 of the West Virginia Pulp and Paper Co., whose plants in that year produced 690,000 tons of paper and 60,000 tons of chemicals from Mechanicville, N. Y., to Charleston, S. C. A special section in this report is called "The Cost of Staying in Business" and certainly there is no more pertinent subject in the industry today. In complete understandable terms West Virginia's management has sub-divided the subject into topics which in themselves illustrate the complications of business today—The cost of holding business, the cost of replacement, changes in wood supply, and—significantly—a discussion of the social cost. This latter topic notes the fact that nowadays it takes a whole town to operate a modern pulp and paper mill and that community responsibilities are involved. Not the least of these, for example, may be attention to problems created by fumes and effluents.

The West Virginia report seems to us to represent a nice balance between the old-fashioned, dry repetition of figures and the recent trend toward graphic, even gaudy, annual reports. It seems to us that West Virginia starts its statistical tables properly enough with cost of operations before going into the matter of net sales, and the statement by Mr. David L. Luke, Jr., president, is concise and yet filled with facts. In it he most ably expresses the viewpoint of many of his confreres in the industry when he concludes:

"As to the future, the outlook is uncertain. I suppose, however, that equal uncertainies plagued the old Piedmont Pulp and Paper Co., when, 60 years ago, it set out to build our original little mill and make sulphite pulp . . . a business in which a number of previous efforts by others had failed."

Because it seems to us that the West Virginia report is in so many ways a considered discussion of a large segment of the whole industry we believe it is of interest to others than shareholders in the company.

Revolution in Australia

The Australian paper industry has been revolutionized by the development of processes to produce pulp from native eucalyptus trees. **PULP & PAPER** has paid considerable attention to this phenomena in recent issues, as our readers are aware. In a recent tour of Canada, many equipment and supply company officials indicated to this magazine their greater stimulated interest in goings-on in Australia.

There were only seven paper mills in Australia in 1938-39, when the use of native wood began, and pulp production was only 6,000 tons. By 1947 pulp production had increased to nearly 89,000 tons, and the number of mills increased to twelve. Other mills are being established, and plans are being developed to tap additional reserves of Australia timber for pulp.

Newsprint Lessons in Latin America

In Chile where the press is free, newsprint is held to be as necessary as medicine.

The government has classified newsprint in the essential class with drugs, etc., for a special rate of dollar exchange—31 pesos for one U. S. dollar, as against 70 pesos for one dollar for automobiles and other imported luxuries.

This indicates, also, how important newsprint imports are for Latin American countries.

Newsprint manufacturing has been a hazardous business in some of these countries.

Politicians in Latin America are often editors or publishers and their shifting fortunes have sometimes been linked to a paper mill. Political promises are easily broken, these mills sometimes learned, after their candidate got in power.

It is interesting to note that paper mills in Mexico some years ago quit making newsprint altogether.

NEWFOUNDLAND TO TEXAS TO WASHINGTON

That's the way a continent is spanned by the distinctive "on the-spot" reporting of editors of PULP & PAPER in three outstanding features in this issue.

A week spent in Newfoundland by PULP & PAPER's editor produced the illustrated, detailed article in this issue on new and revolutionary mechanical logging methods developed on that island of 40,000 sq. miles. These new methods may make possible tremendous savings in money and time to Bowater's Newfoundland Pulp & Paper Mills (see Page 71).

It is followed by another valuable woods management and operations article obtained in Texas by the Southern associate editor of PULP & PAPER.

The illustrated exclusive feature on the new St. Regis mill additions in Tacoma, Wash., which have established several new engineering standards for this industry, is just another example in this issue of how PULP & PAPER is "covering" the continent in bringing to the entire North American industry these authoritative first-hand articles and pictures of these significant and practical developments.

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JOINT COAST MEETING

To Be in Victoria, B. C.

For the first time on the Pacific Coast, a joint meeting is planned by the Pacific Coast Superintendents division and by the new Western Branch of the Technical Section, Canadian Pulp & Paper Association, to be held this spring.

The picturesque Empress Hotel in Victoria, B. C., which has been frequently described as the "most English city" in all Canada, will be the site for this convention and the dates will be May 20-21.

Lester R. "Spud" Hartman, master mechanic, Everett, Wash., mill of Weyerhaeuser Timber Co., and John Guthrie, superintendent, Woodfibre, B. C. mill of British Columbia Pulp & Paper Co., are co-chairmen of the joint American Superintendents—Western Canada Technical Section Branch convention.

Charles Craig, of Sidney Roofing & Paper Co., Victoria, is in charge of hotel reservations for the Canadian Technical section members, and Carl Castle, Dow Chemical Co., Textile Tower, Seattle, is reservations chairman for the American Superintendents.

This meeting, as previously announced in **PULP & PAPER**, will take the place of the usual joint spring meeting of the superintendents and the U. S. Coast Technical section.

Fred Armbruster, of Seattle, secretary of the Superintendents' group, cautioned members of that group who wish to attend not to neglect to fill in and return their notice cards when they receive them. Reservations at the Empress Hotel and also on the Black Ball ferry for automobiles, an overnight ride on the night of the 19th from Seattle, will be made with cooperation of the association division. Unless the cards are returned promptly, some who want to go by this route may be out of luck, as preference will be given to those who send back their filled-in notices.

The car ferry leaves Seattle Thursday night, May 19, at 11:45 p.m. and only a limited number of cars can be taken. The boat arrives in Victoria at 9 a.m. the next day. There is a Canadian Pacific boat, which can handle some cars, leaving at 7:50 a.m. Friday and arriving at noon that day.

Some who attend may want to go by plane from either Seattle or Vancouver, B. C.

COMING INDUSTRY MEETINGS

Commercial Chemical Development Assn.—Hotel Roosevelt, N. Y. C.....Mar. 16

New England Technical Section—Roger Smith Hotel, Holyoke, Mass. .....Mar. 18

Empire State Technical Section—Queensbury Hotel, Glens Falls, N. Y. .....Mar. 18

Del. Valley Tech. Section—Engineers Club, Philadelphia.....Mar. 24

Nat'l. Paper Trade Ass'n. Convention—Waldorf-Astoria Hotel, N.Y. C. .....Apr. 4-6

Shibley Award Contest (Auspices Coast Technical Sections)—Longview, Wash.....April 8

American Institute of Electrical Engineers—Statler Hotel, Buffalo, N. Y. .....April 11-12

Southern Pulp and Paper Safety Assn. — Fort Sumter Hotel, Charleston, S. C.....April 11-12

National Corrosion Engineers Ass'n. Exhibit—Netherland-Plaza Hotel, Cincinnati, O.....April 11-14

FAO-United Nations Conference on World Pulp—Montreal.....April 25

National Coating Convention—Grand Rapids, Mich.....Apr. 26-28

Forest Products Research Society Annual Meeting—Civic Auditorium, Grand Rapids, Mich...May 2-4

Packaging Machinery Institute (Spring Meeting)—Hotel Dennis, Atlantic City, N. J. .....May 9

National Packaging Show—Public Auditorium, Atlantic City.....May 10-13

Coast Supts. and Western Branch Canadian Technical Section Joint Meeting—Empress Hotel, Victoria, B. C. .....May 20-21

Canadian Pulp & Paper Assoc.—General Brock Hotel, Niagara Falls, Ont.....June 1-3

Supts. Convention — Hotel Haddon Hall, Atlantic City, N. J.....June 15-17

National Tech. Ass'n. Fall Meeting—Multnomah Hotel, Portland, Ore.....Sept. 12-16

Wallboard Conference (Auspices N. E. Wood Utilization Council & Harvard U.)—Cambridge, Mass.....Sept. 16

Engineers Conference, Statler Hotel, Boston .....Oct. 31-Nov. 3

Pacific Chemical Exposition — Civic Auditorium, San Francisco.....Nov. 1-5

Paper Industry Salesmen—Midston House, New York City—Every Monday, 12 noon to 2 p.m.

Allied Industries' Luncheon Club—Second Monday of month, 12 noon, Commodore Hotel, New York.

THEIR PICTURE SNAPPED BY PULP & PAPER during a tour of Northeast mills, here are three "veterans" of the industry in that part of country (left to right): JOSEPH F. CRONIN, of Roslindale 31, Mass., who tours for Cheney Bigelow Wire Works; ED F. McGONAGLE, of Belmont, Mass., representative for Shuler & Benninghofen, and JAMES S. REED, Bond Paper Mill Supt., Fraser Paper, Ltd., Madawaska, Me., who was born in Calais, Vermont, and has been with Fraser since 1925.

Commercial Chemist Group to Meet

The Commercial Chemical Development Association will hold its New York City meeting on March 16 in the Hotel Roosevelt, Henrik Hudson Room. Reservations should be mailed immediately to C. D. Goodale, Commercial Solvents Corp., Terre Haute, Ind. Among the subjects to be discussed are: Toxicological Safeguards in Commercial Chemical Development, Development of the Isotope Distribution Program, and Sales Promotion and Advertising in Commercial Chemical Development.

Among those participating will be Richard W. KixMiller, director of product development department, Chemical Div., Celanese Corp.; Dr. Henry F. Smythe, Jr., of Mellon Institute; Dr. Harlan Trumbull, assistant to the director of research, B. F. Goodrich Co.; Paul B. Slaughter, Jr., of House of J. Hayden Twiss. John B. Calkin, consultant, will introduce the speakers at the luncheon and dinner sessions. L. B. Hitchcock is president of the Commercial Chemical Development Association, and F. A. Soderberg is executive secretary.

Two Australian Mills Are Being Planned

Two new companies recently have been formed to manufacture paper in Australia. The larger with a capitalization of about $15,000,000 will erect a mill at Burnie, Tasmania, to produce vegetable parchment, greaseproof, glassine and other specialty papers.

The second mill is to be located at Ballarat, Victoria, will produce coated papers. No data is available concerning the planned capacity of the new mills or the source of their necessary pulp supply.

Driers Installed

One of the paper machines at Downington Paper Co., Downington, Pa., will be modernized by the installation of 72 welded steel driers, built by the Lukenweld Div. of Lukens Steel Co., according to F. Huston McIlwain, president of the Downingtown Company. New driers replace 92 castiron driers and elimination of 20 driers makes space for other equipment in their modernization program.

Webster Heads Operations Of National Container Mills

William T. Webster (left), who has had a distinguished career in both the Southern and Pacific Coast kraft industries, has been promoted to the position of general manager of the Jacksonville, Fla., mill of National Container Corp., and director of all mill operations of the company and its affiliates. There are affiliate mills in Big Island, Va., Ontonagon, Mich., and Tomahawk, Wis.

Announcement of his promotion came from Samuel Kipnis, New York, president who said that Richard H. Laftman, who held those titles, has been forced to relinquist them because of ill health. Mr. Kipnis praised Mr. Laftman highly, recalling he had been with National Container since the Jacksonville mill was built. He will continue as a director and vice president of all the National Container companies and also as consultant to mill management.

Mr. Webster, who was formerly general superintendent in Tacoma, Wash., and Brunswick, Ga., mills, and who came from Pennsylvania, has been assistant general manager under Mr. Laftman, for some time now, and was active in recent management of expansion at the Florida mill.

Mr. Laftman, a native of Sweden where his father headed the Billingsfors mill, is 62. He came to U. S. in 1911 and helped build the Moss Point, Miss., mill where he stayed as superintendent. Then he went to West Point, Va., and Bogalusa, La., becoming vice president and manager there in 1925. In the '30s he went back to Sweden for four years to run the Billingsfors mill and rebuild it. He joined National Container in 1937 as manager of construction and by 1946 had become a director as well as vice president.

JACK LEISER, Manager, Pioneer Wrapper Co., was recently elected President of the Paper Mill Men's club, Los Angeles. He was Secretary last year.

Other new officers for the L. A. club for 1949 are: IRVIN E. DAMON, Northern Paper Mills, Vice President; ROLAND WOLF, California Cotton Mills, Secretary; L. A. GARDINER, Nekoosa-Edwards Paper Co., Treasurer.

FIR-TEX INSTALLS BAUERS

Increase In Production Planned

R. V. PAZINA, Chemical Engineer, looks over newest of four Bauer pulpers now installed at Fir-Tex Insulating Board Co., St. Helens, Ore.

One phase of Fir-Tex Insulating Board Co.'s modernization and expansion program at St. Helens, Ore., was how to most expeditiously increase production from the previous 120, to 160-165 tons per day. In short, the sequence for processing cooked chips has been as follows: From digester through two stages of shredding (hammermills), through Wiener refiners, through two stages of jordaning (Miami 7's by Shartle Bros. Machine Co., Division of Black Clawson Co.), and then to the board machine.

With a view to increasing wet-stock capacity the company made tests at the plant trying out various kinds and types of pulpers. The end objective was to determine which machine produced most suitable free-fiber stock at minimum cost.

As result of tests, one Bauer pulper was installed. Subsequently another was added then a third, and now the fourth one of these machines has been installed ready for cutting into the system about the first of the year.

The first Bauer at this plant was originally installed behind one of the jordans. Here tests were carried on, varying adjustment of the machine from fine to course fiber production and observing results obtained. Results showed the Bauer to give the desired fiber control.

Three of these Bauer 2-disc pulpers operating in parallel are an integral unit of a new system in the wet-end process, which is installed for making the planned additional 40-45 tons of stock.

As with the previously described system, cooked chips first go to the two hammermill shredders, but beyond this point the flow of stock in the two systems differs. In the newer system stock goes directly from shredders to the Bauers, then is cut back to the other system's stock flow just ahead of the jordans.

The fourth and latest Bauer has been installed for use in conjunction with No. 6 digester for making either specialty or regular-run stock. Prior to installation of the fourth Bauer pulper, No. 6 digester was used only as an accumulator. Stock from No. 6 digester will go directly to this Bauer, then to a stock chest, and subsequently be pumped into the main production line immediately ahead of the jordans.

These Bauer pulpers, each powered by two 150 h.p. Westinghouse motors of 1175 r.p.m., have two 36" rotating stainless discs, the stock feeding through center of one disc.

Former Gold Medal Winner Dies

William G. McNaughton, world authority on paper manufacturing and an engineer of the Newsprint Service Bureau for many years, died in February of a heart ailment at his home at Yonkers, N. Y. He was 75 years old. In 1946 (see March, 1946, **PULP & PAPER**) he won the technical association's gold medal for outstanding service to the industry. He was one of the foremost characters in the pulp and paper field and widely known for work as far west as Spokane, Wash., as well as in New England, the Midwest and South.

An Industry Discussion of

Pulp Situation—March, 1949

The following discussion of the pulp situation as it has developed during the past two years and as it stands in the first quarter of 1949 is based on interviews with a number of well informed industry men representing pertinent phases of the pulp and paper industry. It is offered as a definitive account of a new phase which, although long expected, has been much misinterpreted in the press and even in some quarters of the industry itself.

What has happened to pulp prices in the last six months? What kinds of pulp and how much volume of each have been affected by recent price changes?

During the long two-year seller's market which followed the termination of price controls, sharp disparities developed between the North American contract market for many commodities, including pulp and paper, and spot market and European contract market. Just as the spectacular rises were in these latter markets the greatest declines have occurred in these areas. For example, the contract market for newsprint has continued steady in the neighborhood of $100 per ton. The much publicized spot market which had risen to $230 per ton and more has now subsided to a relatively small premium price over the North American contract price. This makes headlines, but the fact remains that this great reduction had no effect whatsoever on the great majority of publishers who purchase newsprint on North American contracts. There was a similar condition in many other segments of the industry where substantial premiums were paid for spot lots of North American pulp as well as all supplies imported from Europe.

In analyzing the market wood pulp situation care must be taken to differentiate between unbleached kraft and the so-called white pulps — bleached and unbleached sulfite and bleached and semi-bleached kraft. There was very little unbleached kraft produced and sold under regular contract in the U. S. and Canada. Consequently, most of the unbleached kraft tonnage required for market purposes had to be purchased on the spot and overseas market and was subject to the extreme fluctuation of such markets. The market for northern unbleached kraft rose from the last OPA price of $89 delivered to a high of $150 or more delivered in the spring of 1948. Even the limited North American contract market for unbleached kraft approached this level. Today the highest North American contract price for northern unbleached kraft is in a range of $115 delivered and the spot market is now below this level. Swedish and Finnish unbleached kraft is not selling at all, pending announcement of first open water prices. Southern unbleached has followed an erratic course and is now selling at its customary discount from northern.

While unbleached kraft prices have been responsive to our major dependence on European and on spot sources of supply, the white pulp situation has been notably and measurably different.

Along this line, let us examine as accurately as possible the amounts of 1947 and 1948 U. S. supply of market sulfite and sulfate pulp which was *sold to U. S. paper and paperboard mills at prices substantially above North American contract prices.* The table below is an estimate only, but it is the estimate resulting from the combined judgment of half a dozen experts in the industry.

	New Supply	Sold at U.S.A. and Canadian Contract Prices	Sold at Prices Higher than U.S.A. and Canadian Contract Prices	% of Total New Supply at Prices Higher than U.S. and Canadian Contract Prices
1947	*Tons*	*Tons*	*Tons*	*Tons*
Bl. Sulphite	689,000	602,000	87,000	13%
Bl. and Semi Bl. Sulphate	209,000	128,000	81,000	39%
Unbl. Sulphite	808,000	515,000	293,000	36%
Total	1,706,000	1,245,000	461,000	27%
1948				
Bl. Sulphite	706,000	623,000	83,000	12%
Bl. and Semi Bl. Sulphate	249,000	135,000	114,000	46%
Unbl. Sulphite	767,000	552,000	215,000	28%
Total	1,722,000	1,310,000	412,000	24%

The inevitable and readily apparent conclusion to be drawn from the figures above is that the price levels which have made the headlines, and which have too often been the subject of discussion within the industry, have not been representative with respect to the white pulp picture.

Very pertinent in a survey of the present pulp situation is a review of woodpulp history since the Fall of 1946 when pulp began to move from the OPA bases. The following table tells the story.

APPROXIMATE DELIVERED PRICES PER TON OF DOMESTIC AND CANADIAN AND EUROPEAN WOODPULP IN THE U. S. MARKET DURING 1947 AND 1948 AS COMPARED WITH FINAL O.P.A. AUTHORIZED PRICES NOV. 10, 1946

BLEACHED SULPHITE

(Final O.P.A. Price Nov. 1946—$107.50 Delivered)

	1947	
	U.S. & Canadian	*European*
1st Quarter	$115.-$120.	$125.-$170.
2nd Quarter	120.- 125.	155.- 170.
3rd Quarter	120.- 125.	165.- 175.
4th Quarter	120.-125.	180.- 190.
	1948	
	U.S. & Canadian	*European*
1st Quarter	$126.-$135.	$180.-$190.
2nd Quarter	126.- 135.	190.- 200.
3rd Quarter	126.- 135.	190.- 200.
4th Quarter	126.- 135.	170.- 175.

UNBLEACHED SULPHITE

(Final O.P.A. Price Nov. 1946—$94.00 Delivered)

	1947	
	U.S. & Canadian	*European*
1st Quarter	$105.	$105.-$140.
2nd Quarter	115.	120.- 150.
3rd Quarter	115.	135.- 150.
4th Quarter	115.	150.- 175.
	1948	
	U.S. & Canadian	*European*
1st Quarter	$125.-$130.	$150.-$175.
2nd Quarter	125.- 130.	160.- 175.
3rd Quarter	125.- 130.	160.- 175.
4th Quarter	125.- 130.	140.- 155.

BLEACHED KRAFT

(Final O.P.A. Price Nov. 1946—$107.50 Delivered)

	1947	
	U.S. & Canadian	*European*
1st Quarter	$125.-$130.	$130.-$135.
2nd Quarter	130.- 150.	155.- 170.
3rd Quarter	130.- 150.	165.- 175.
4th Quarter	130.- 150.	180.- 190.
	1948	
	U.S. & Canadian	*European*
1st Quarter	$170.-$185.	$180.-$190.
2nd Quarter	170.- 185.	190.- 200.
3rd Quarter	160.- 185.	190.- 200.
4th Quarter	147.50- 160.	170.- 175.

A point of interest would be the comparative percentages of increase since the final OPA prices in the U. S. and Canada, and the European prices.

For example, at the high point—namely, during the second and third quarters of 1948—the price of European bleached sulfite ranged from 77 to 86% over the last OPA price, whereas the contract price on U. S. and Canadian bleached sulfite was only 17% to 26% over the last OPA price for the whole year of 1948.

During the first quarter of 1949, the U. S. and Canadian contract prices for bleached sulfite have held at $126 to $135 delivered. The North American contract price for unbleached sulfite has dropped moderately to $118 to $125 delivered while bleached kraft contract prices have eased to $136 to $147.50 delivered. Spot market pulp has had to meet these levels to find a buyer. Aside from Norway, which has reduced bleached sulfite to the price of approximately $145 delivered, Scandinavian producers have so far announced no change from the fourth quarter prices. Due to this fact and the closed shipping season, only negligible transactions have taken place. At least one Swedish producer of bleached kraft has adjusted his first quarter price to a dock price approximating $155 delivered.

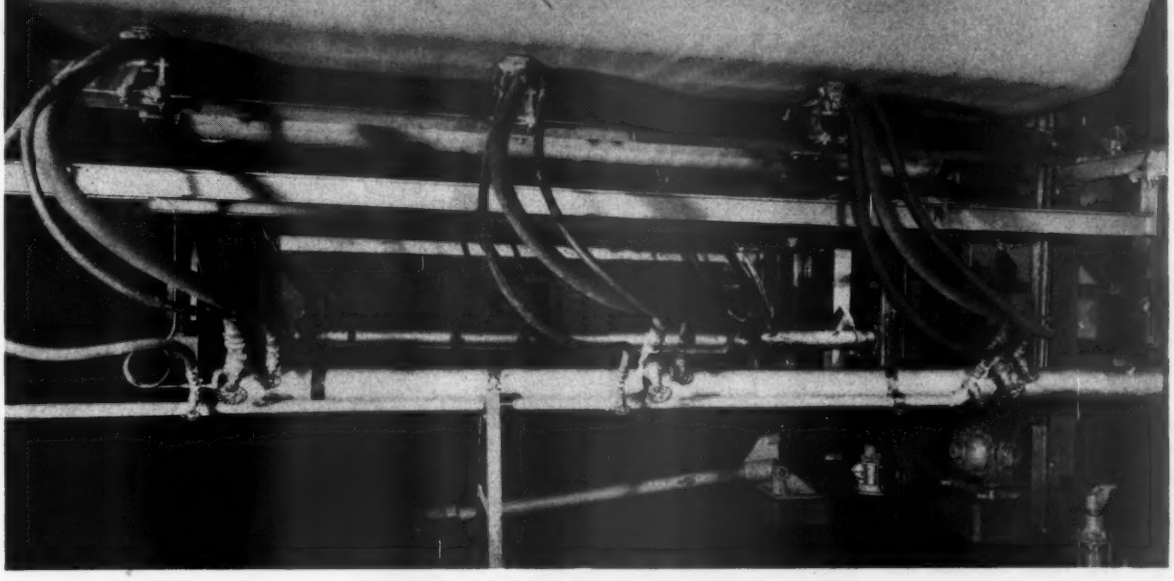
As this issue goes to press, second quarter prices have not yet been announced by European suppliers. However, it is a part of this review of the pulp situation to note that the price reduc-

(Continued on page 121)

On big, fast-running press felts like this
at the new ST. REGIS PAPER CO. MILL, TACOMA

VICKERY FELT CONDITIONERS

are Standard Equipment



HERE, directly below the machine floor at this new mill is one of the Conditioner installations that is going to help make this big machine one of the fastest paper machines in the world.

Vickery Felt Conditioners equipped with the new "Jordan" type shoes keep the felts continuously on the job at maximum speed right through the week. No mill can afford to operate without Conditioners today.

THE "JORDAN" TYPE VACUUM BOX permits double the vacuum without wrinkling the felt. Conditioning is thorough, regardless of speed. The felt is so dry when it reaches the suction presses that it absorbs a maximum amount of water. Less steam is needed at the dryers. Many mills report substantial increase in felt life.

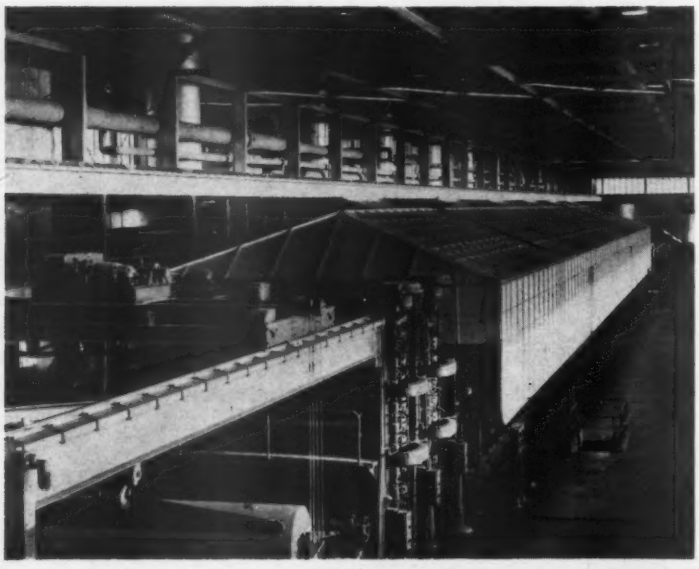
BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

Complete MILL VENTILATION

at ST. REGIS, TACOMA

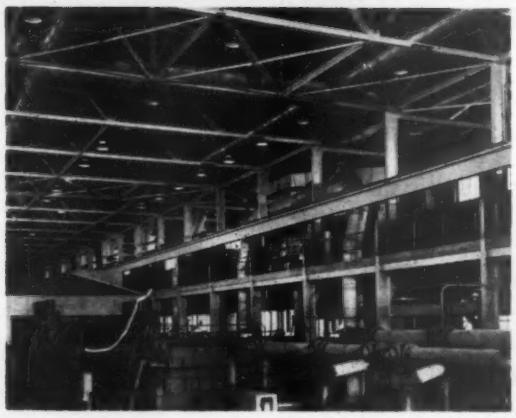
ENGINEERED and INSTALLED by DECO

THE FOLLOWING SYSTEMS WERE COMPLETELY ENGINEERED, FABRICATED AND INSTALLED AT THE ST. REGIS MILL BY DECO.



- ✓ Machine Room Heating and Ventilating . . . including Summer Cooling for principal working areas.
- ✓ Paper Machine Hood and Exhaust.
- ✓ Bottom Dryer Felt Ventilating System.
- ✓ Calender Cooling System.
- ✓ Electrical Center Cooling and Ventilating System.
- ✓ D. C. Motor Cooling and Ventilating System.
- ✓ Hi-Jet System for Dryer Section Pocket Ventilation.
- ✓ Trim Conveying System.
- ✓ Air Conditioning System for Constant Temperature and Humidity Paper Testing Laboratory.
- ✓ Stamm Moisture Control System for Paper Machine.

Paper Machine Hood and Exhaust with roof supply apparatus and summer cooling ducts.



Several of the 8 supply units located on the mezzanine.

DECO Hi-Jet installation . . . Note freedom from interference and easy machine tending at each dryer pocket. Rear nozzles are equally free from interference.

DREW ENGINEERING CO.

809 N.E. Lombard St. Portland, Oregon

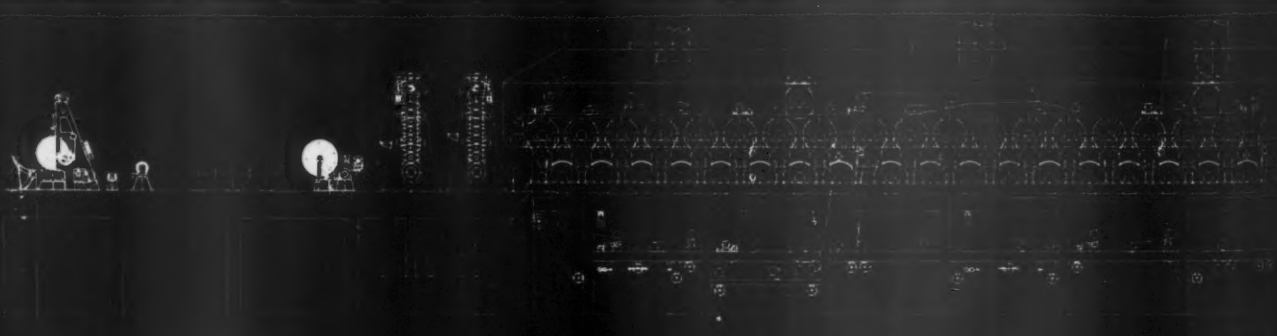
A Story in Word and Picture of the Highest Speed, Largest Production Fourdrinier Paper Machine ever Built for the Manufacture of Multi-Wall Kraft Bag Paper. This outstanding Puseyjones installation is designed for top speed of 2,100 F.P.M. The successful start-up took place on January 5, 1949.

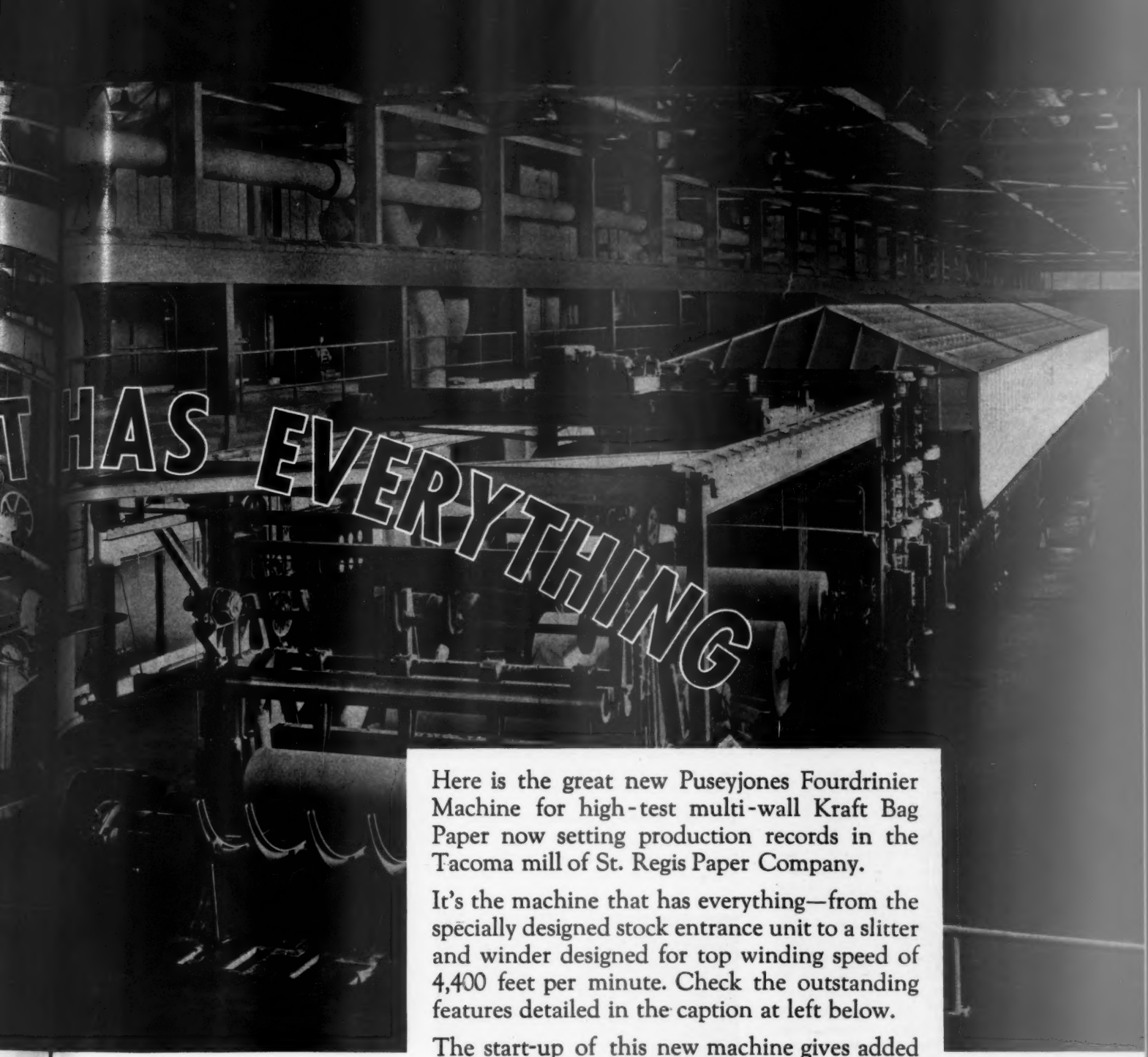
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

180" Puseyjones Fourdrinier Machine in Tacoma mill of St. Regis Paper Company is the highest speed, largest production machine ever built for multi-wall Kraft Bag Paper. Designed and constructed for top speed of 2100 F.P.M. Start-up was January 5, 1949.

Line drawing of new machine. Features include latest type Puseyjones Flow Spreader with entirely new closed pressure slice designed to handle 30,000 G.P.M. of stock; Fourdrinier part for wire 180" wide by 120 feet long with high speed shake, raising and lowering device, and "Rapi-drape" wire changer with all adjustments hydraulically operated, and all framework Monel covered; Press part of latest Simplex arrangement; special creping attachment; Dryer part arranged in four separate driven sections; latest type Steam Joints with dual revolving siphons; Dryer bearings with Lucite windows on observation; two Calender stacks with pneumatic loading; improved high-speed Reel; Slitter and Winder of latest two-drum type with roll-handling device hydraulically operated; all rotating parts including drying cylinders balanced dynamically for top driving speeds.





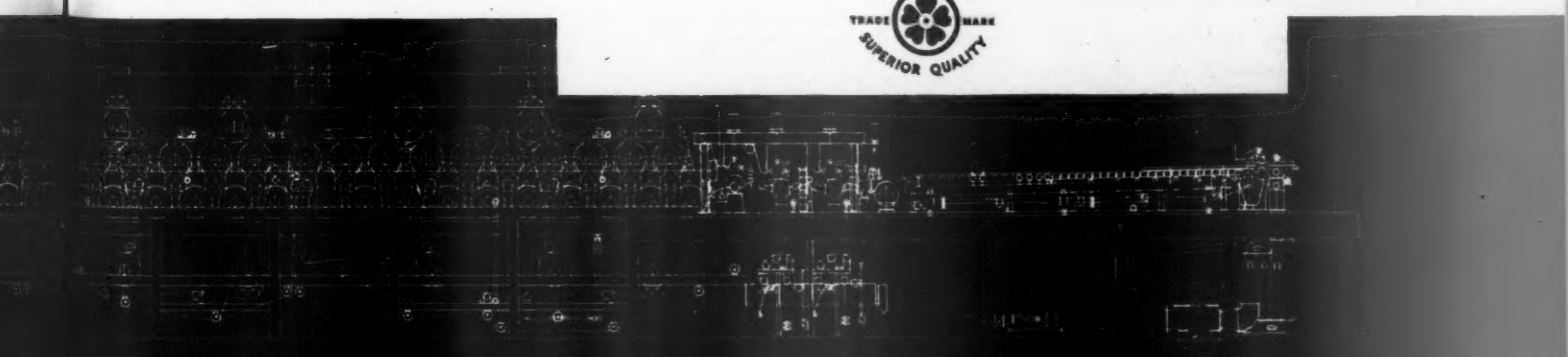
Here is the great new Puseyjones Fourdrinier Machine for high-test multi-wall Kraft Bag Paper now setting production records in the Tacoma mill of St. Regis Paper Company.

It's the machine that has everything—from the specially designed stock entrance unit to a slitter and winder designed for top winding speed of 4,400 feet per minute. Check the outstanding features detailed in the caption at left below.

The start-up of this new machine gives added meaning to the famous St. Regis slogan, "Better packaging at lower cost."

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY



A NEW KRAFT CENTER

Paper Mill and Barker Plant in Tacoma Set New Engineering Standards

ROY K. FERGUSON (left), President, St. Regis Paper Co., with headquarters at 230 Park Ave., New York.

EDWARD R. GAY (right), St. Regis Paper Co., New York, Director and Vice President. Mr. Gay directs packaging division and has played a leading role in remarkable growth of multiwall paper bag as an industrial container.

Copyright, 1949, by PULP & PAPER

Here is an exclusive "on-the-spot" complete description of a remarkable new paper mill and new wood preparation plant in the Far West, obtained by ***PULP & PAPER*** *as the result of several personal visits to the site by its editors and with many exclusive pictures taken by this magazine. Undoubtedly, engineering-wise, these plants will be a magnet of interest and subject of lively discussion throughout the North American industry and even abroad for a long time to come. Here is a complete and officially authorized reference article on them.*

A new paper mill which embodies some of the most unusual and interesting departures from standard practice in both its general construction and its uses of new equipment has started up operations in Tacoma, Wash. Here, with this first and exclusive description of this mill, many photographs taken by **PULP & PAPER** illustrate its strikingly ultra-modern character.

St. Regis Paper Co. built this mill, to house what is potentially one of the fastest paper machines in the world, a Pusey & Jones 180-inch Fourdrinier, designed for 2,100 ft. per minute. It started making kraft multi-wall bag paper on Jan. 5 and has been operating smoothly and almost continuously right from the start. This start-up was just a year to the day after first concrete was poured.

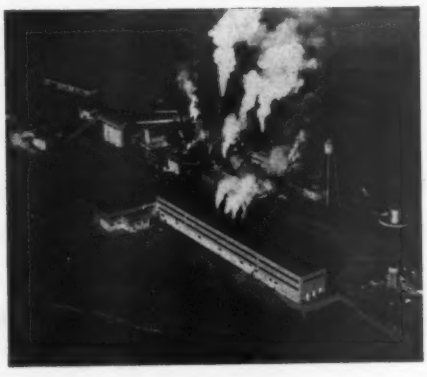
If ever the adjective "newest" was justified in describing a mill, it is certainly warranted in this case. Some of the things that have been done engineering-wise in Tacoma have established new standards for this industry in style and materials used in construction and in applications of new machinery.

In an airy bright mill, now the outstanding and most attractive industrial landmark on the Tacoma waterfront, is a straight-line operation through the entire length of a 600 ft. long room. The remarkable simplicity of design, coupled with efficiency, have already won highest praise from recognized authorities who have visited the mill. The visibility and the roominess achieved are extraordinary —all down the length of the machine room and also from a roomy mezzanine floor extending the full length of the building.

Half of the 300 tons of kraft pulp made in Tacoma is still being bleached and shipped to world markets, so the paper machine has not yet had to demonstrate its speed capacity and had only been run at a rate of 150-180 tons a day.

Unusual Wood Preparation Plant

But the paper mill is not the only important new addition here. There also is a new wood preparation plant and chip storage system, just as unconventional as the paper mill in both plant design and equipment selection. It is probably the most versatile barking plant ever built, with three types of barkers—two hydraulic and one drum—and three chippers and an intricate conveying system for seven different kinds of wood, all converging on a 60-inch belt to three big concrete chip silos.



OUR COVER PICTURE—

This is a miniature of our cover air view showing new St. Regis kraft paper mill (long building) in center foreground. Wing to left, adjoining paper mill is storage space and small section jutting out contains laboratories and paper mill offices. At upper left is new barking plant with three large chip silos between barking plant and older installations of the pulp mill, in the background. Administration offices are at far right in picture.

Area between paper storage and barking plant is provisionally reserved in layouts for large bag plant. All the property to left of the highway and railroad was acquired by purchase in 1946 and made possible these new additions. This picture shows corrugated glass and panel construction of the paper mill instead of the conventional masonry and sash. All the construction work was done by Howard S. Wright & Co. of Seattle.

WALTER DELONG (left), Vice President and Director and Manager of the expanded Tacoma, Wash., Division, who directed the developments at that site.

JUSTIN H. McCARTHY (right), Chief Engineer, St. Regis Paper Co., Tacoma, and Project Manager of its recent expansion. He graduated from Dartmouth in 1915, from its School of Engineering in 1916. Was born in Portsmouth, N. H., and was associated for 17 years with Hardy S. Ferguson. Built the second unit of Soundview Pulp Co., Everett, Wash., and also its modern barking plant before joining St. Regis in Sept., 1946.

This addition, which started up operation just 11 months before the paper mill made its first paper, is also described and illustrated toward the end of this article. Efficiencies in the plant are saving almost one-fifth of the wood supply of St. Regis for future years. In other words, nearly a 20% increase in pulp yield is achieved.

Thus, at the wood preparation end and at the finishing end, St. Regis has taken important strides for extension and full integration of its western operations in Tacoma. Heretofore, its existing facilities were for production only of market pulp. The extensions were made possible by the purchase in 1946 of 27 acres adjoining the pulp mill property on the west side. As a result there is adequate room for a multi-wall bag plant of large size at the paper storage end of the new paper mill. In fact, provisions have been made in tentative layouts for a future multi-wall bag plant.

And so, here is a Northern Kraft Center, comparable with the Southern Kraft Center which St. Regis built in collaboration with James H. Allen, pioneer Southern industry operator, in North Pensacola,

W. R. ADAMS (left), of Deferiet, N. Y., who recently became Vice President of St. Regis Paper Co., in charge of some of their kraft operations. He advised and consulted with the Tacoma mill management on expansion at that mill.

JACK M. LAMB (right), Purchasing Agent, St. Regis Paper Co., Tacoma, who played an important role in expedition equipment and supplies for the expansion projects.

Fla., last year, described in the June 1948 issue of **PULP & PAPER**

There, integration from tree to paper bag was achieved; in Tacoma almost as much has already been accomplished with one St. Regis bag plant already existing only 30 miles away in South Seattle. Paper from the new Tacoma mill goes to three St. Regis bag plants on the coast, but it also goes all over the world, and some of the very first paper made, in fact, was shipped to Colombia.

The Men Behind the Improvements

Walter DeLong, who for years was associated with the late Ossian Anderson in pioneering the internationally important market pulp industry on the Pacific Coast, and who has been vice president and manager of the St. Regis operations in Tacoma since 1942, created the background for this expansion by his foresight in building up a perpetual timber supply for St. Regis in the Pacific Northwest.

Justin H. McCarthy, who already had distinguished himself by his departures from conventional engineering practice in ten years as chief engineer of Soundview Pulp Co., in Everett, Wash., during which he more than doubled the size of that huge operation and built one of the first hydraulic log barking plants, was engaged in Sept. 1946 by Mr. DeLong to be chief engineer and project manager at Tacoma.

The unconventional style of architecture in the new plants, the selection of corrugated glass and panel construction instead of conventional masonry and sash, and other innovations in layout and operation, were the realization of a dream which Mr. McCarthy visualized back in '46. Every step of the way, Mr. DeLong gave him full support and courageously approved what represented a venturesome investment, both in the entirely new barking plant and the paper mill.

Departures from Orthodox

The departures from orthodox practice in plant design and equipment in the paper mill are numerous. Here are some of them:

Timber Acquisitions Which Made Possible Expansion at Tacoma

Before any of these developments could be undertaken, the first major job, which required a lot of energy and a great deal of capital, was to secure the necessary raw material in order to be assured of a supply to guarantee an expenditure of this magnitude. Walter DeLong, vice president and manager, played an important role in these acquisitions which have assured the future of St. Regis' western mills.

The first large deal that was made was with the West Fork Timber Co. by a contract which provided for the perpetual operation by the St. Regis Paper Co. of the West Fork holdings, which consisted of about 59,000 acres in western Washington. This contract provides that these timberlands shall be operated on what is known as a perpetual yield basis. That is: (1) all the timber removed from the land shall be selectively cut; (2) all trees so removed shall be marked before cutting, and (3) great care shall be taken in logging the timber so as to destroy as little as possible of the remaining younger timber so it may have a chance to produce requirements of the mill.

The next acquisition was the North Bend Timber Co., which contained about 15,000 acres in western Washington. A great deal of this land has been cut over and is now in the reforestation stage. This country has a great potential supply of small wood which can be shipped to the mill economically.

The company started to accumulate other blocks of timber such as the timber on the Hoh River in Jefferson county, the Cooney timber in Grays Harbor county, and a lot of other holdings in Pacific county, and it has been the scheme to continuously purchase timber and timberlands and a great deal of reforested lands have been purchased, containing a good second growth of timber, some of it as much as 60 years old.

Recently the company acquired a tract of land in Grays Harbor county that has a very fine stand of second growth timber and it was the decision of the company's forestry department to enter into a contract with the U. S. Forestry Service to make a complete study and from this study determine what might be expected as the increment per acre of second growth timber now owned by the company and that which it hopes to acquire in the future. The company's officials believe that this study is not only going to be beneficial to the St. Regis Paper Co. but beneficial to all wood owners in this part of the country.

It has been determined that with the proper equipment and very careful supervision raw material through the re-logging process can be put in to this mill at a very economical figure and in a quantity that will equal one-quarter of the capacity of this mill. It has also been found that by letting contracts it is possible to obtain from the tie mills in the district adjacent to Tacoma slabs that are cut by these tie mills equalling an average of better than 30 tons of pulp per day.

The company is also taking from local sawmills and plywood plants a great quantity of wood and chips, and it is expected to expand this source in the near future, so that with all the sources of supply indicated this mill should be assured of a continuous supply of raw material for many, many years to come.

1. The 180-inch Fourdrinier has many new features including an entirely new design of closed pressure inlet.

2. First extensive applications of hydraulic high pressure oil-pump driven motors instead of conventional electric motors to actuate suction box, press, and dryer doctor oscillators, and to eject and dump rolls from winder.

3. Individual General Electric electronic-amplidyne speed regulation of each machine section with adjustable speeds up to 4,400 ft. per minute on the winder.

4. A 180 ft. by 20 ft. filtered air conditioned electric control room with constant outward pressure to protect apparatus from all hazard of dust, dirt and moisture. This is one of eleven air systems installed throughout the plant by Drew Engineering Co., Portland, Ore.

5. The first broke Hydrapulper in the west and one of the first anywhere; with broke dropping into it by gravity from dryers, calenders and reel and saving all tedious broke handling.

6. Extensive use of stainless steel, for many parts of the paper machine, and also a stainless steel Hydrapulper hopper and saveall chute of striking workmanship by Flohr & Co., Metal Fabricators, and light gauge stainless fittings by Alaskan Copper Works for all piping systems (both Seattle fabricating firms).

7. "Color-coding" of all process piping and electric conduit for identification as well as protection, using a dozen colors according to a code worked out by St. Regis.

8. Original devices in the various Drew Engineering Co. heating, ventilating, conditioning and air control systems described later in this article.

9. The first Hercules Powder Co. automatic emulsifying process installed in the West and one of the first in the country for converting rosin paste to 4% emulsion ahead of the machine, described in this magazine last month in an illustrated article.

10. Use of reinforced concrete instead of structural steel from basement to work floor of the 600 ft. long pulp preparation and machine room, with steel above the work floor and welded steel trusses.

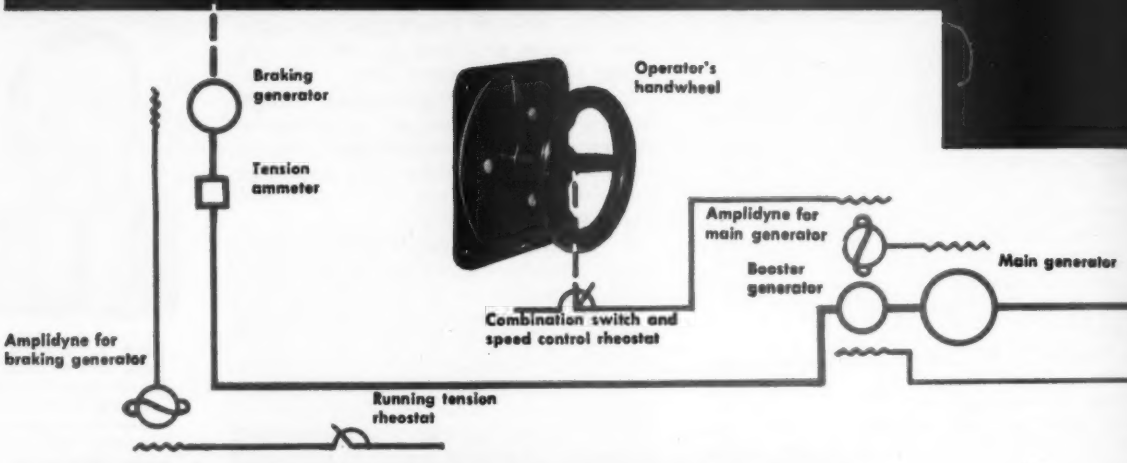
11. Continuous corrugated glass panels with stainless steel fittings, instead of steel sash, thus eliminating maintenance

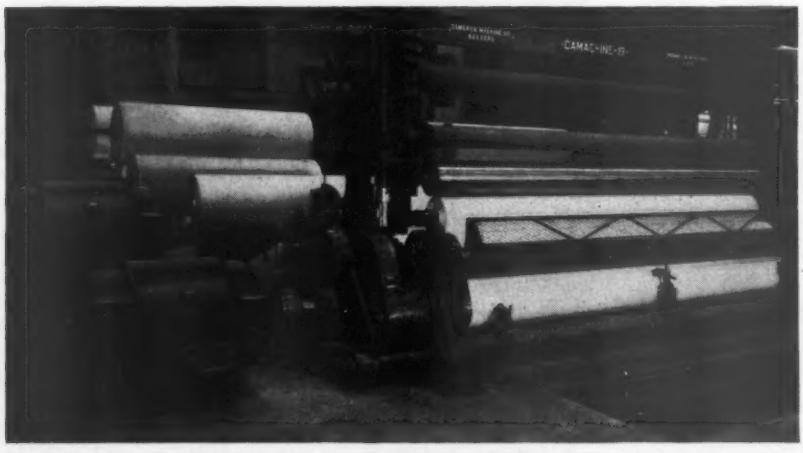
(Continued on page 39)

JOHN A. McDERMOTT (left), General Supt. of Paper Mill, St. Regis Paper Co., Tacoma, Wash. He was Supt. at Taggart (St. Regis) mill at Oswego, N. Y., for 11 years and with the organization for 20 years before moving to Tacoma last June. Born in Kingston, Ont., he started in paper industry at now defunct J. J. Warren groundwood mill at Brownsville, N. Y.

HAROLD T. RANDLES (right), Technical Director of the new St. Regis paper mill in Tacoma. Was Chief Chemist for 3 years of Watertown, Herring and Carthage Mills of Taggart (St. Regis) in New York. Was in army 3 years and prior to that at Herring mill. Born in Ottawa, Ill.; graduated Syracuse U.

Faster Winding-AND EVERY R



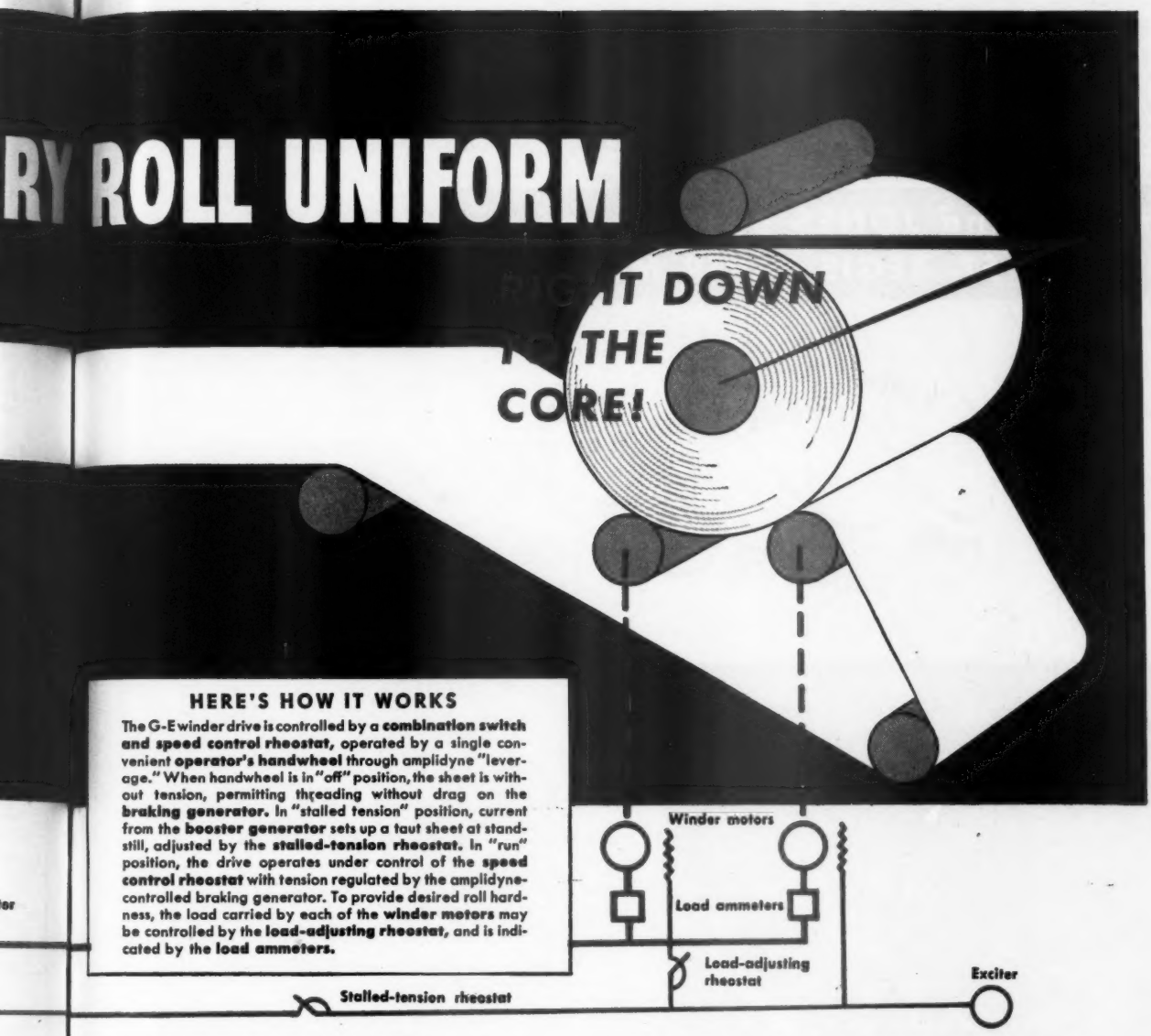


Accurate control of speed and tension by means of a two-motor G-E winder drive help keep quality and production high in this Eastern paper mill.

PAPER MILL DRIVES

—TO HELP YOU MODERNIZE FOR FASTER, LOWER-COST PAPER-MAKING!

RY ROLL UNIFORM



HERE'S HOW IT WORKS

The G-E winder drive is controlled by a **combination switch and speed control rheostat,** operated by a single convenient **operator's handwheel** through amplidyne "leverage." When handwheel is in "off" position, the sheet is without tension, permitting threading without drag on the **braking generator.** In "stalled tension" position, current from the **booster generator** sets up a taut sheet at standstill, adjusted by the **stalled-tension rheostat.** In "run" position, the drive operates under control of the **speed control rheostat** with tension regulated by the amplidyne-controlled braking generator. To provide desired roll hardness, the load carried by each of the **winder motors** may be controlled by the **load-adjusting rheostat,** and is indicated by the **load ammeters.**

General Electric Winder Drives give you accurate control of speed and tension for smooth, even-density winding — more rolls per day!

Amplidyne-controlled, these modern General Electric winder drives provide the "musts" for fast, even winding—smooth speed changes, rapid acceleration and deceleration, and a wide range of speeds.

You wind more rolls per day with a G-E winder drive because running speeds are boosted, non-productive splicing time is cut and you stop faster, resume running speed faster. Threading, too, is quicker and easier.

You wind uniformly hard or soft rolls as desired. Smoother speed changes mean fewer winder tears during threading or accelerating. And there's no damage to finish, formation, or caliper of the paper.

For extra ease of operation, a single handwheel gives you complete command of the winder at all times—for stalled tension, starting, running, stopping, jogging, or threading.

It's up to you. If you're thinking of speeding up your winders to keep pace with today's faster paper machines, call in a G-E sales engineer. He'll gladly go into details on modernizing your present drives. Meanwhile, write today for your copy of a new bulletin "Winder Drives for Paper Mills," GEA-5190. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

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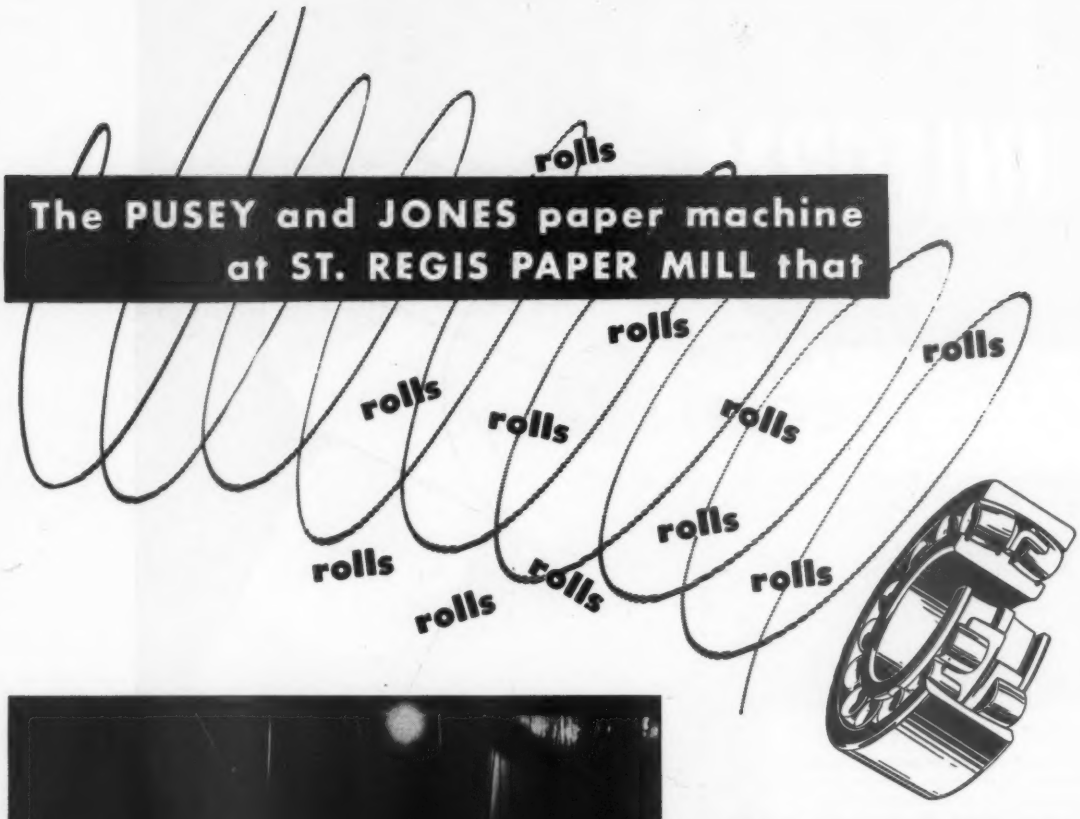
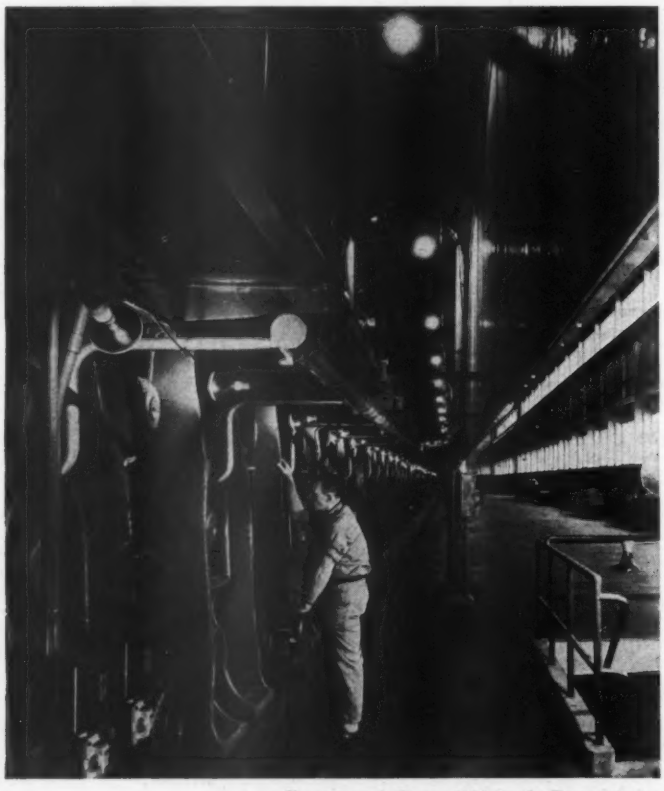




Pusey and Jones 180-inch Fourdrinier built for the St. Regis Paper Company.

ROLLS FASTER ON SKF BEARINGS

This new, Pusey & Jones 180-inch Fourdrinier machine is designed for 2100 feet per minute . . . and it operates continuously—on some 1,000 SKF Bearings . . . mostly SKF Spherical Roller Bearings.

The drier section of this giant piece of equipment is smoothly driven by helical gears. Many of the larger journals are drilled for SKF's system of hydraulic removal of the bearings for speedy servicing —*should such removal ever be necessary.* On tending side in the drier end, housings are equipped with the SKF rocker mount, permitting expansion and contraction of the driers—with no lateral stresses on the side frames.

As pioneers of anti-friction bearing applications in the paper industry, SKF salutes the Pusey and Jones Corp. and the St. Regis Paper Company for this newest addition. SKF Industries, Inc., Philadelphia 32, Pa.

6563

PAPER EQUIPMENT BEARINGS ENGINEERED BY SKF

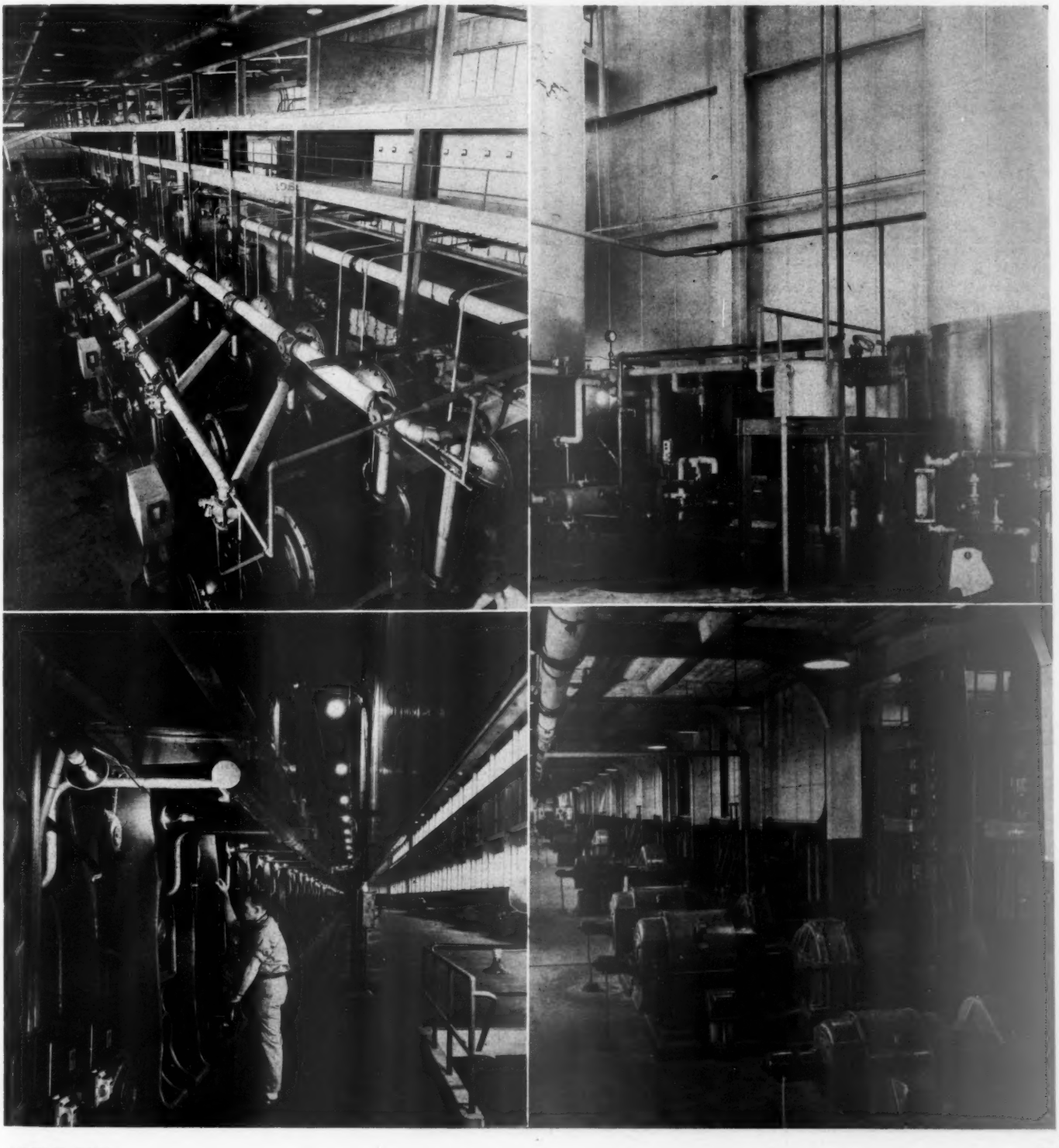
and providing fixed windows letting in more than usual light.

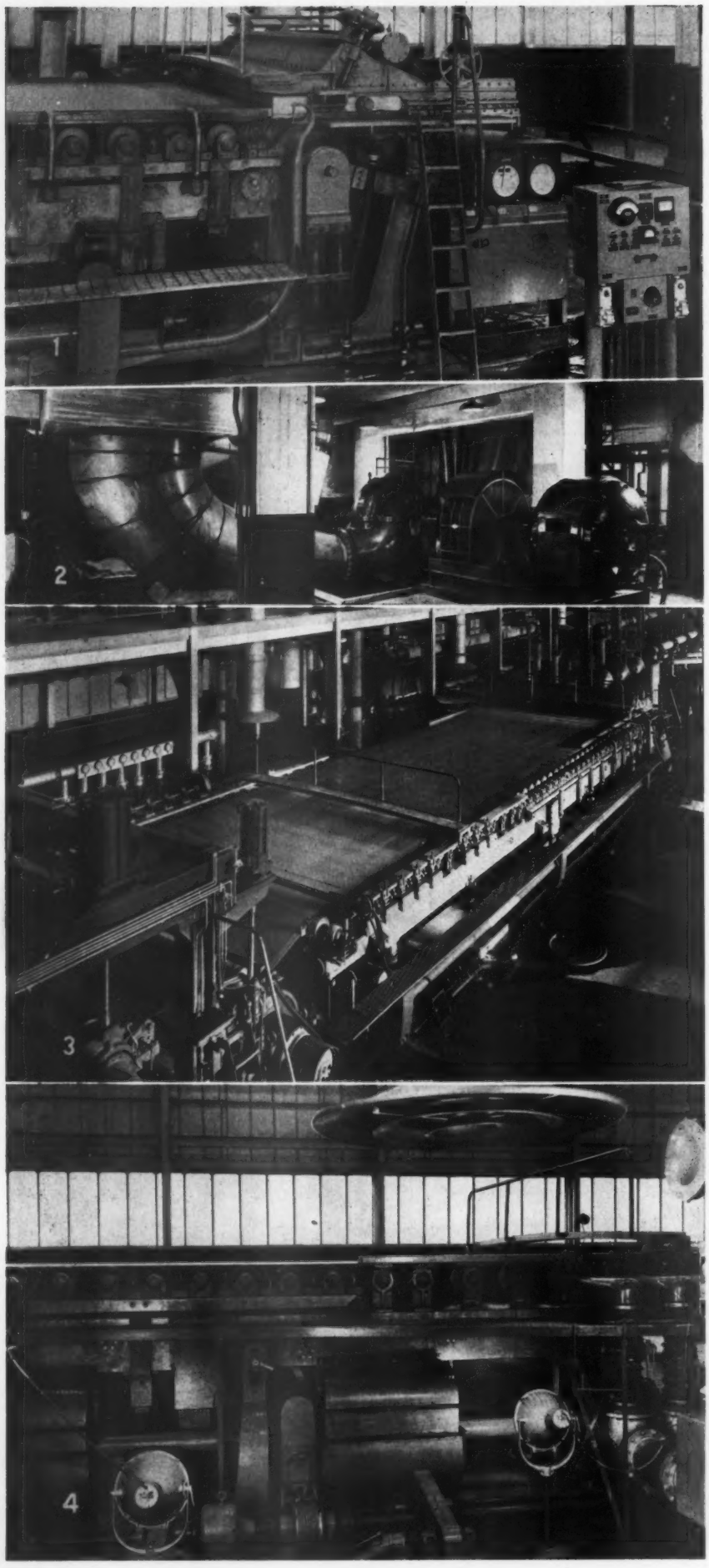
12. H. H. Robertson Co. insulated wall panels—corrugated protected steel Q-panels on the outside with flat sheets inside and 1½-inch of fiber glass between, providing insulating value which is equivalent to a 12-inch masonry wall. The panels also are easily removable for installation of machinery and may be put back quickly using permanent bolt holes.

A great many other things might be

EQUIPMENT AT ST. REGIS TACOMA PLANT. Upper left—Ten E. D. Jones & Sons majestic jordans with Johns-Manville Transite piping; stainless steel fittings provided by Alaskan Copper Works (Seattle) and 45 three-way and two-way DeZurik Shower Co. (Sartell, Minn.) valves. Each jordan is driven by General Electric 400 h.p., 400 r.p.m. motor and G. E. new, inkless type recording wattmeters are at left, one for each jordan. Upper right—Hercules automatic emulsifier is in new paper mill at end wall ahead of jordans and dry end of machine. Tank at left is for rosin paste pumped in from tank cars. In the middle is Hercules mixer and mixing pumps. Bristol instrumentation is used.

Lower left—Drew Engineering Co. (Portland, Ore.) Hi-Jet system of aluminum piping on dryer section of new high speed Pusey & Jones machine. Round Lucite window at end of dryer roll, showing nearest bearing, is for constant visibility of bearings. Also note system of spotlights between each dryer frame. There are four dryer sections. Lower right—Back side of new machine showing coodinated, constant-speed control, G. E. drives from Pope type reel back toward couch. Western Gear reducers and tachometer regulators are used with each section of electronic type multiple generator drive. Shown also, part of rigid frame for building frame. These resist all horizontal wind loads, as there is no upper masonry, but a new corrugated panel siding for the building.





NEW EQUIPMENT AT ST. REGIS KRAFT CENTER

1—Pressure inlet specially designed for 2,100 ft. per minute maximum speed on the Pusey & Jones machine. Walter Gordon, Jr., electrical engineer of Tacoma, designed control alongside pressure inlet for fan pump and its magnetic drive which are on the floor below—pictured in photo No. 2. Inlet with stainless steel slice will handle 30,000 gallons.

2—At left is stainless steel fitting made by Alaskan Copper of Seattle, which supplies machine water to Worthington Fan Pump of 30,000 gallons capacity, and supplies 2% stock to the slice. Fan pump is at right of post, next is the electric machinery magnetic drive and next, is the General Electric 350 h.p. synchronous motor.

3—180-inch wide Fourdrinier section of new Pusey & Jones kraft machine. At left, Hanna Engineering Works (Chicago) air cylinders for press loading and for lump breaker roll operation. This roll does not have to be removed during Rapidrape wire change. Drew Engineering fresh air supply equipment for ventilation is shown. At right is specially designed pressure inlet for potential speed up to 2,100 ft. per minute, with stainless steel slice.

4—Back of Fourdrinier section. Two small Vickers hydraulic motors are used instead of electric motors; one on left for Fourdrinier Rapidrape runout for changing of wire; one on right for jacks to adjust pitch of Fourdrinier.

enumerated here. less unusual perhaps but evidence of the modern character of this new mill.

We might mention the specially designed control for the big 30,000 gallons-per-minute fan pump and its magnetic drive, positioned a floor above them at the pressure inlet; also the inkless type recording wattmeter at the operating end of each E. D. Jones Majestic jordan—ten in all—to give continuous recording instead of the customary instantaneous readings on an ammeter; also the elaborate jordaning system using 3-way and 2-way DeZurik valves—45 in all—and Johns Manville Transite piping with Crown Zellerbach type of fabricated steel flange, which doesn't contact the stock and uses molten mineral lead to make up the joint; also the systems of spotlights between each dryer frame throughout the four sections of dryers and the Lucite windows for viewing all dryer roll bearings.

Truly a Far West Accomplishment

Before going into detail about the equipment in the new paper mill and barking plant, it is important to point out that here is a major industrial development in the west for which the engineering and planning was done by western men.

President Roy Ferguson of St. Regis and other top officials of that company, of course, consulted and advised frequently with Tacoma management. Vice President William R. Adams, who is charged especially with responsibilities for kraft operation and production for St. Regis, and also John McDermott, the new paper mill superintendent in Tacoma, who formerly held a similar position at the Oswego, N. Y., kraft mill, worked closely with Pusey & Jones engineers in planning the machine design. They also worked closely with Mr. McCarthy in arrangement and hook-up of production equipment and back in '46 Mr. Adams and Mr. McCarthy made a tour of most of the leading kraft mills of the continent to see

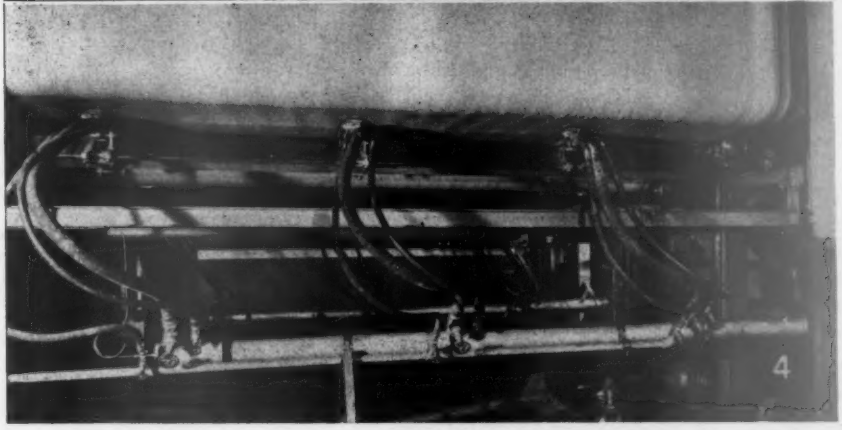
MORE NEW ST. REGIS EQUIPMENT

1—Pusey & Jones rewinder for 180-inch machine is capable of speeds up to 4,400 ft. per minute. Speed is held constant automatically by G. E. amplidyne type control; tension, by field control of braking generator. Pushbutton control releases full paper roll by lowering arms at left in picture. Ederer crane is operating overhead.

2—Air-filtered electric room (200 x 20 ft.) with air system by Drew Engineering Co. and providing constant outward pressure to protect equipment from dust, moisture, etc. On left are two 1,000 hp. G.E. multi-generator paper machine drive sets. On right, foreground, D.C. control panels for generators; next, are amplidyne generators. In background, 4,160-volt A.C. switchgear with exciter controls and other D.C. controls.

3—Pacific-Western 5675 Herringbone gear speed reducer used in couch roll drive supplied by G.E. This is driven by 400 h.p. special motor and has reduction ratio of 6.94:1. It is one of 11 Pacific-Western units driving entire machine and reel.

4—Bird Machine Co. (South Walpole, Mass.) Vickery felt "conditioners" with jordan type shoes on wet press felts. This scene is below machine floor at new St. Regis mill.



what was new and modern in that division of this industry.

But it is interesting to note how distinctly "Far Western" has been most of the conception and engineering of these plants. Mr. McCarthy, the chief engineer, although a native of Portsmouth, N. H., and a graduate of Dartmouth in 1915, and for 17 years an associate of the veteran mill builder, Hardy S. Ferguson, another Dartmouth man, in eastern Canada and United States, is, nevertheless, a western engineer in every sense of the word. Engineering he did in Three Rivers, Que., in Temiskaming, in Bathurst and Edmundston, N. B., were just preliminaries to his career extending over 14 years in the pulp industry of the west, which began in Central Engineering for Rayonier in Port Angeles, Wash., in 1934.

Boris Rubens, educated in Europe and now living in Seattle where he is a member of the engineering firm of Stevenson & Rubens, did the structural and machinery layout work on the paper mill and barking plant under direction of Mr. McCarthy.

Howard S. Wright & Co., contractors of Seattle, carried out all general construction work in barking plant and paper mill, together with all mill equipment handling and installations. This company also managed all electrical, painting and piping sub-contracting.

All steel work was done by Isaacson Iron Works, of Seattle.

Erection of the Robertson Q-Panel siding and Robertson corrugated wire glass was by the G. Donald Bradley Co. of Seattle, Western Washington agents of the H. H. Robertson Co., under direct supervision of Dewey R. Thibeau.

Walter S. Gordon, Jr., a Tacoma electrical engineer who directed U. S. Army projects in the South Pacific during the war as a major, did all the electrical layout work in both plants.

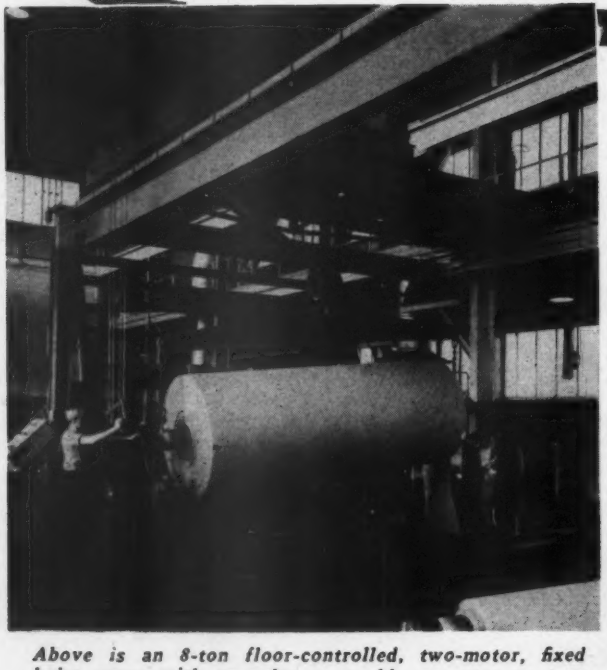
Art Hall, of the St. Regis staff, was in charge of all field layout and inspection work.

The mill engineering staff under Mr. McCarthy, also included Ed Anderson,

At right is a 6-ton floor-controlled, fixed hoist, single motor log canting crane for releasing logs that jam in conveyer to chipper. Notable feature is extremely low headroom — runway rail to top of crane is only 16⅝".

In background is 35-ton floor-controlled, single motor stand-by crane for servicing chipper, designed with exceptionally low hoist speed — 5 feet per minute.

5 NEW EDERER CRANES CUSTOM-BUILT FOR THE WEST'S NEWEST PULP AND PAPER PLANT



Above is an 8-ton floor-controlled, two-motor, fixed hoist crane with spreader to enable operator to turn rolls of paper in any direction.

The paper and new wood preparation plant of the St. Regis Paper Company, just completed in Tacoma, Washington, embodies many revolutionary improvements in design and equipment. Ederer designed and custom-built five cranes for the plant. Shown here are three of the five.

There are two other cranes; a 3-ton three-motor cab-controlled crane for handling paper storage, and a 24-ton five-motor, floor-controlled machine-room crane which is literally a "half-crane." Its present span of 49'8" has been so designed that it can be extended to 75'—retaining its 24-ton capacity—when the machine room is widened according to plan.

All these cranes were custom-built to exact job requirements. Ederer engineers can do the same for your plant—and will be glad to discuss it with you.

EDERER ENGINEERING COMPANY
2931 FIRST AVENUE SOUTH
SEATTLE 4, WASHINGTON

STAND-BY CRANES • HIGH-LIFT CRANES • CALENDER CRANES • LOG CANTING CRANES • MONORAIL HOISTS

W. E. King and Willard Campbell, who designed piping systems and assisted in general layout.

Jack Lamb, who has been purchasing agent at the Tacoma mill since 1928, through its various ownerships including Union Bag, played an important role by handling and expediting procurement.

Considerable important equipment, like the Pusey & Jones machine, came from the east, but there was an unusual amount of specialized equipment from the west.

And so, the thoroughly western character of management, engineering and construction of these new industrial plants is a demonstration of how far the Pacific Coast has progressed industrially since World War II.

Besides Mr. McDermott, who arrived in Tacoma last June, among St. Regis men who moved west from their Northern New York operations to take over key posts in the new plant are John Victor, assistant paper mill superintendent, and Harold Randles, paper mill technical director.

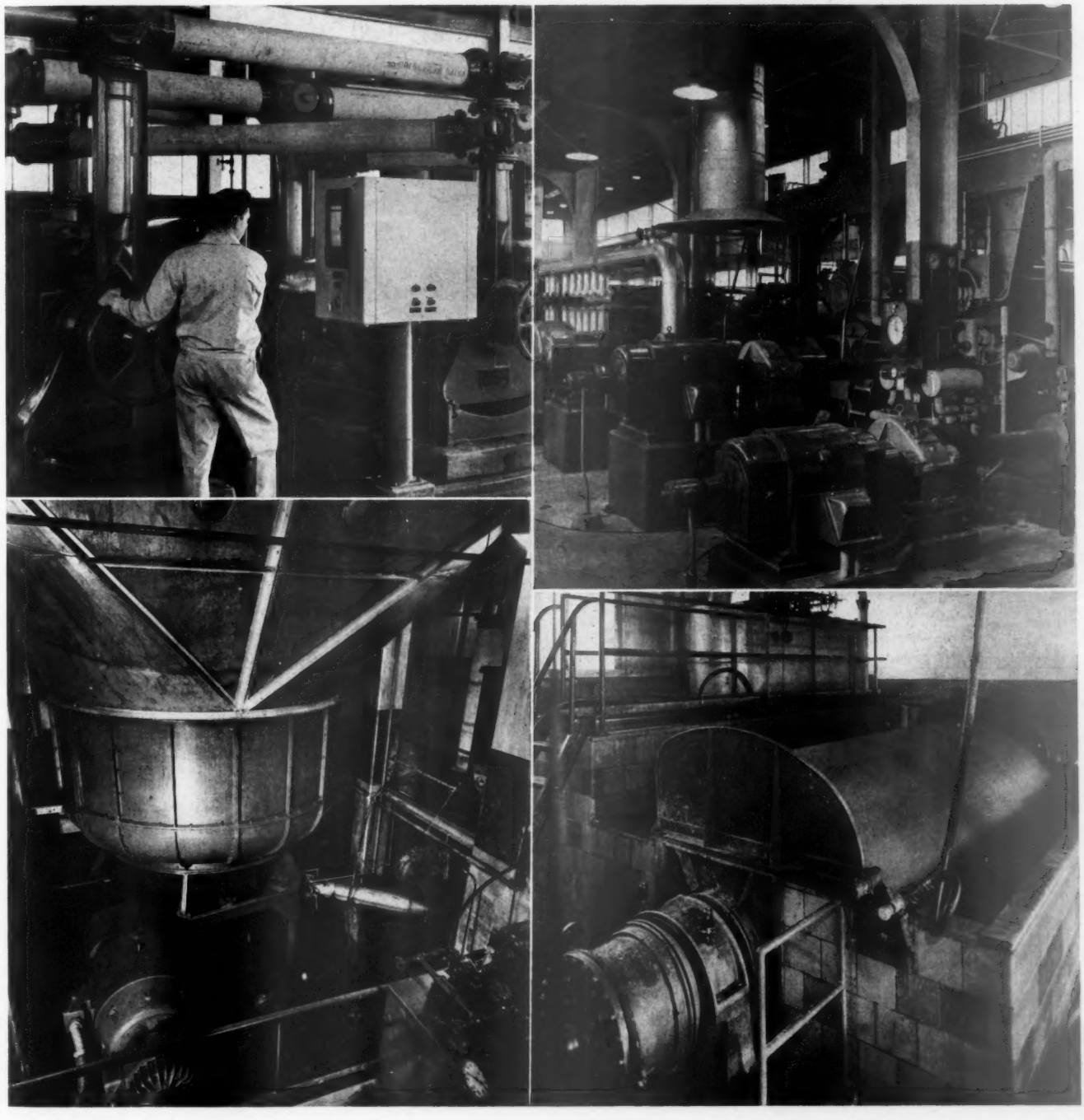
Description of Paper Mill

There are three levels of the paper mill building, a first floor, a machine floor and a mezzanine which extends the full length of the building.

On the machine floor, at the end wall ahead of the machine is the Hercules automatic emulsifying process, with a 15,000-gallon tank for rosin paste pumped into it from tank cars on one side and a 6,000-gallon tank of 4% emulsion ready for the machine at the other, and between,

IMPORTANT ADDITIONS AT ST. REGIS:

Upper left, Operator for battery of 10 E. D. Jones & Sons jordans which are ahead of paper machine. This shows inkless type G. E. recording wattmeter on each jordan for continuous recording; also, closeup of two 3-way DeZurik valves. Upper right: Back of press section with G. E. drives in 180-inch machine. Ventilating hood and air system by Drew Engineering of Portland.
Lower left, Body of 14-ft. Dilts hydrapulper for broke, is first broke hydrapulper in West; it eliminates transportation and handling of broke —is fed by gravity and is in basement below calenders and reel. Striking example of workmanship is stainless steel hopper made by Flohr & Co. of Seattle. G. E. wound rotor 200 h.p. motor drives hydrapulper. Lower right, Oliver United Saveall, 8x16 ft., rubber-covered with tile vat, on mezzanine floor above and ahead of new paper mill. Saveall is also used as decker to keep consistency at 5%.



2,100 FEET PER MINUTE ON TIMKEN® BEARINGS AT TACOMA

Backbone of kraft production at the new St. Regis Paper Company mill, Tacoma, Washington, is a 180″ Pusey & Jones fourdrinier designed to operate at 2,100 feet per minute, making it the world's fastest kraft machine.

To attain this speed the fourdrinier manufacturer knew friction could not be permitted. To maintain this speed they knew radial, thrust and combined loads constantly must be held in check and correct and constant roll alignment assured.

So following a policy established many years ago, Pusey & Jones have used Timken tapered roller bearings on the table rolls (60); lump-breaker roll (2); and breast roll (2). They also have equipped the reel cores with Timken bearings (8); and adjustable dryer felt-carrying rolls (16). Thus they have assured maximum operating speeds, minimum operating and maintenance costs with prolonged lives for wires and felts.

In addition to the above applications, the following equipment at the new St. Regis mill also uses Timken bearings: 110″ and 153″ Sumner chippers; Western Gear Company's right angle BH5 gear reduction units; Dilts 14-foot Hydrapulper; Dodge-Timken pillow blocks in splasher drives.

For more and better paper at lower cost specify Timken tapered roller bearings in the machines you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address "TIMROSCO".

TIMKEN
TAPERED ROLLER BEARINGS

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬭ AND THRUST →⬭← LOADS OR ANY COMBINATION →✳←

INSTRUMENT ROOMS and LABORATORIES at new St. Regis Kraft Center.

Top—Paper testing laboratory.

Center—Westinghouse board — 440-volt distribution panel with transparent plastic breaker covers enabling operators to tell if breaker is off or "on." Bottom—Control panels (Westinghouse) with special design by Walter S. Gordon, Jr., showing internal buss circuit diagrammed on face for convenience in visualizing distribution.

the mixer and system of pumps for hot and cold water and rosin. The continuous, automatic system, instead of batch preparation, saves an operator.

Next are the 10 E. D. Jones & Sons Majestic jordans and their intricate system of piping and valves for various combinations of jordaning and the GE recording wattmeters already described. The jordans have cylindrical bearing guides, insuring better positioning of bearings (plugs can be withdrawn for servicing or refilling without dismounting roller bearings). Type W plugs are used, with full length bar support, incorporating permanent stainless wire-wound bands of great strength, with plugs dynamically balanced at operating speed. Each jordan is driven by a General Electric 400 hp, 400 rpm. synchronous motor.

On the mezzanine above here is an Oliver United saveall, 8 by 16 ft., rubber-covered, with tile vat. It is also used as a decker to keep raw stock consistency at 5%. The rest of the roomy mezzanine is mainly taken up with equipment for eight of the Drew Engineering Co., Portland, Ore., ventilating systems and Drew hood exhausters.

Ahead of the machine is a DeZurik consistency regulator with stainless steel vat. The regulator is equipped with a recorder system and push button control for changing setting of the stuff gates from remote point, operated by machine tender.

At this end of the building on the first floor are the three big stock chests, the largest 50 tons, capacity at 5%, with Shartle Bros. agitators to insure uniform density consistency flow. Shartle furnished two 48-inch, and thirteen 60-inch diameter 4-blade propeller agitators, rubber-covered with adjustable pitch, air foil design.

Next are the alum tanks with Brown instruments for PH control. There is a fourth smaller stock chest and a broke chest. These were all lined with Semtile by Stebbins Engineering Corp. of Seattle, as well as a seal-box wire pit and couch pit. All the stock chest agitators were rubber-lined by the Huntington Rubber Mills of Seattle.

All stock and white water pumps are Goulds Pumps supplied by R. M. Wade & Co. There are 11 Goulds stock pumps, three on white water and one on cold water, nearly all being rated at 1500 or 1200 g.p.m., but including one of 3500 g.p.m. on white water and one of 2250 on 4% stock. They are each driven by GE motors of up to 100 hp. Shartle Bros. Machine Co. made agitators for stock chests.

A Worthington 30,000 g.p.m. 36-inch x 30-inch fan pump handles .2% stock to the slice. This unit is driven by a GE 350 hp. 450 r.p.m. synchronous motor and an

Electric Machinery 350 hp. magnetic drive between the motor and pump, provides variable pump speed. The magnetic drive "ring" which is driven at constant speed by the synchronous motor is separated from the "magnet" element, which is connected with the pump shaft, by an air gap. Torque is transmitted by electromagnetism. Variation of the direct current is handled by an electron coltroller called the Regutron. Adjustable speed on the fan pump provides head control of stock flow to correspond with speed of wire.

The pressure inlet, as we have stated, is designed for a maximum speed of 2,100 f.p.m. Mr. Gordon designed a control panel on the machine floor near the inlet for control of the fan pump and magnetic drive. The Pusey & Jones type flow spreader is combined with the new closed pressure high speed hydraulic nozzle slice with construction of stainless steel and stainless-clad steel.

The Fourdrinier section carries a wire 180 inches wide and 120 ft. long and is equipped with shake, raising and lowering device and combined with the P & J Rapidrape "run-out" wire-changing equipment, without necessity of removing the Fourdrinier proper. The Vickers hydraulic motors are located here, for the Rapidrape and for pitch adjustment, as previously mentioned. All framework is Monel-encased. There is one main stainless forming board and four special intermediate forming boards. Breast roll and wire rolls are equipped with Lodding doctors.

The machine has a 44-inch suction couch roll supplied by Downingtown Mfg. Co. with double suction box and a lump breaker roll, with supports from the press section, so it is unnecessary to remove this roll when changing wire. Suction boxes are with stainless steel latest type flexible connections and oscillating device. Save-all pans and return wire rolls are of Monel.

Three General Electric photoelectric "eyes" automatically operate a jet of water to cut the paper sheet at the couch when a break occurs.

Hanna Engineering Works air cylinders are used for the lump breaker roll operation and for the press section, where they control nip loading pressure and raise upper rolls. A Mason-Neilan control system is provided for pneumatic loading. The press part is of the latest Simplex arrangement with first and second suction press rolls each 36 inches diameter, supplied by Downingtown Mfg. Co. The upper rubber-covered rolls are 30 inches in diameter. Oscillating doctor for each upper roll is hydraulically operated and equipped with Lodding doctor blade holders. Vickery felt conditioners with jordan-type shoes are used on press felts.

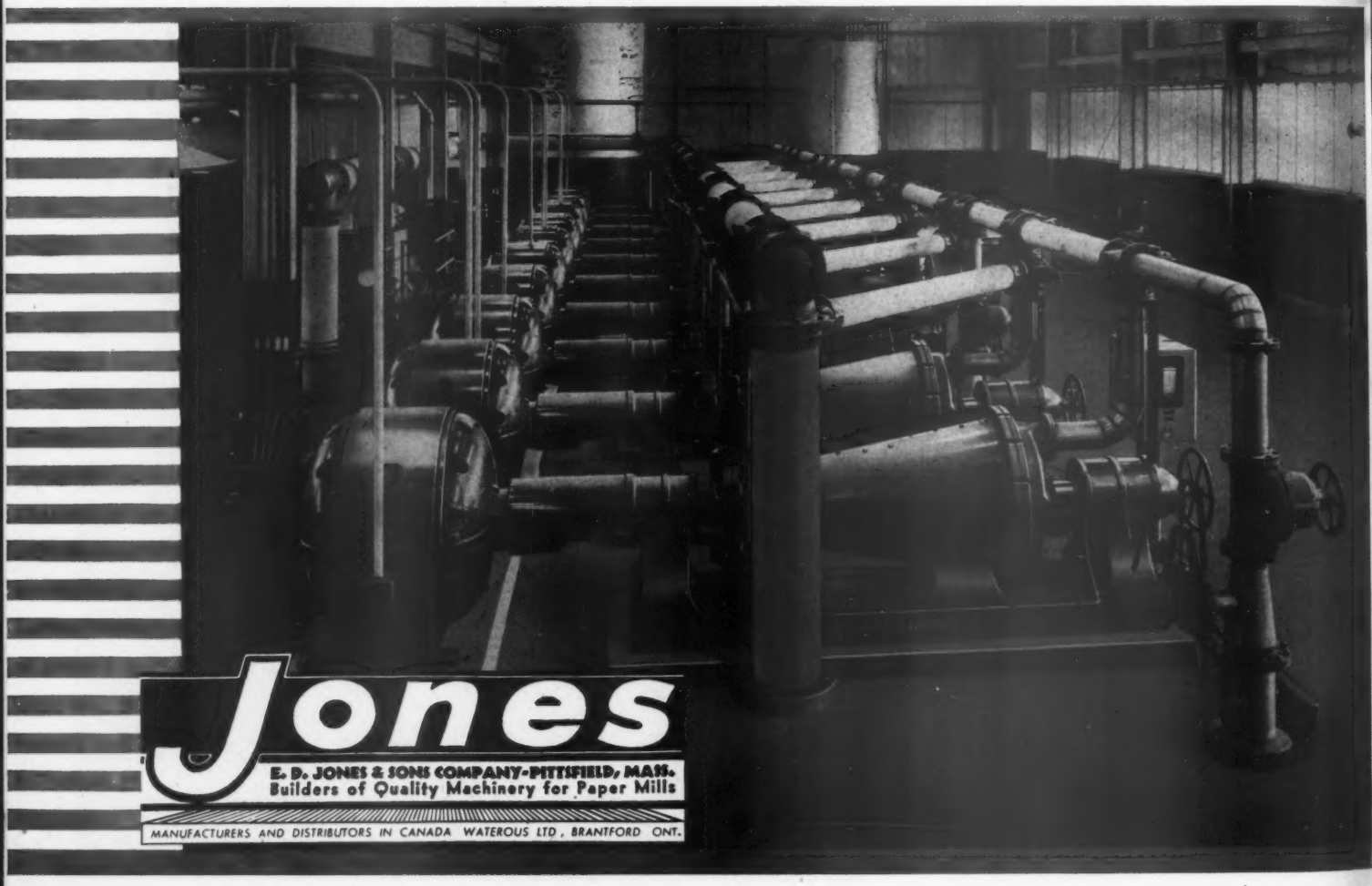
A special creping attachment in connection with a 42-inch receiving dryer has a heavy duty creping doctor with Lodding doctor blade holder.

At this point it may be noted that on the first floor are nine vacuum pumps made by the Nash Engineering Co. through Clark & Vicario Co. These include four big H-11 pumps on the suction couch, two on each box, and each pair driven by a 500 hp. General Electric synchronous motor.

A K-8 vacuum pump handles air from flat boxes and is driven by a 75 hp. motor. Two H-10's operate on the two suction press rolls, one K-8 on the press felt boxes and an L-7 for Vickery felt conditioners.

There are four dryer sections. The first three each have 20—60-inch dryer rolls and 6, 4 and 2 felt dryers of same diameter. The last section has 16 dryer rolls and two felt dryers, also the same size. SKF Industries spherical roller bearings are on each dryer with floating design mounts and Lucite windows in tending side to facilitate observation at all times. The cylinders are designed for 60 lbs. pressure and were tested at 120. Felt takeups are of motor-operated tension design without use of hanging weights. Doctors are oscillated hydraulically. All rolls are dynamically balanced at 2,100 ft. per minute.

A Midwest-Fulton Machine Co. forced vapor drainage system supplied by Clark

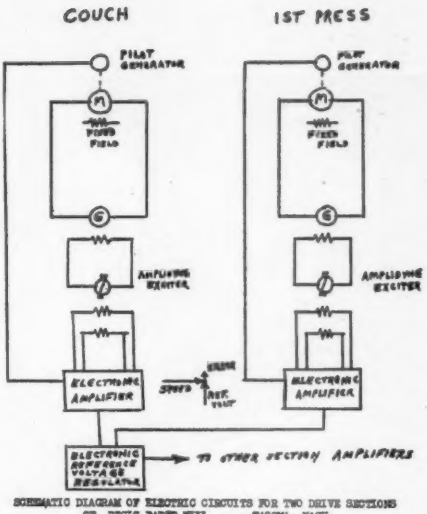

Jones
E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of Quality Machinery for Paper Mills
MANUFACTURERS AND DISTRIBUTORS IN CANADA WATEROUS LTD., BRANTFORD ONT.

& Vicario Co., removes condensate and air or non-condensable gas from the dryers. Condensate from the Drew ventilating system is also handled by a Midwest-Fulton unit. This system and also the Bowser central oiling systems for the dryer section and calender stacks are on the basement floor under the machine. The dryer Bowser tanks hold 14,000 gals. of high grade lubricating oil.

Two calender stacks each contain eight rolls made by Lobdell Co., with 32-inch bottom roll. Pneumatic loading supplies additional pressure to the rolls. Lodding doctors are provided on calenders. The Torrington Co., Bantam Bearings Div., South Bend, Ind., made the calender stack bearings and nearly all heavy duty bearings and also all doctor oscillating ball bearings.

The Pope type uniform speed reel has a 42-inch main drum and air-controlled loading and tension. Timken Roller Bearing Co. made reel bearings and all felt and wire roll bearings. Slitter and winder were provided by Pusey & Jones with top winding speed of 4400 f.p.m.

The 14-ft. Dilts Hydrapulper for broke is under the calenders and reel and it, as previously stated, eliminates all broke transportation. A 200 hp. wound rotor General Electric motor drives the Hydrapulper to obtain maximum life with minimum maintenance despite frequent starting and peak loading duty.



SCHEMATIC DIAGRAM OF ELECTRIC CIRCUITS FOR TWO DRIVE SECTIONS ST. REGIS PAPER MILL - - TACOMA, WASH.

There is a big 24-ton, 50 ft. span, 5-motor, floor controlled machine room crane for general purposes and also an 8-ton 22-ft. span fixed hoist crane for handling reels of paper between reel and winder. These are among the five cranes supplied the paper mill and barking plant by Ederer Engineering Co. of Seattle. This includes one in the paper storage room, which is a 3-ton crane using Mansaver Engineering Co. (New Haven, Conn.) "roll-grab," the latter has revolving cushions which pick up a roll off-center when it is lying horizontally on the floor and revolving grab pads revolve it to upright position when lifted for transport to storage.

U. S. Rubber Co. covered all table and felt rolls, Stowe-Woodward covered both suction rolls and Griffith and Huntington, the two Coast plants, covered two top press rolls each.

The Electrical Equipment

Throughout the paper mill there are 187 motors supplied by General Electric Co. G.E. supplied 11 motor generator sets, including two with 1,000 hp A.C. synchronous motors, and other electrical equipment. All gear reducers were supplied by Western Gear Works of Seattle.

Coordinated, precise, constant speed control of each paper machine section results from the use of individual GE electronic-amplidyne speed regulators. Each section is driven through gears by a forced-ventilated d.c. motor energized by its own d.c. generator. Each speed regulator compares the output voltage of the section tachometer generator to a constant, electronically regulated reference voltage and changes the generator armature voltage to maintain speed regardless of load or power line disturbances.

In addition to precise speed regulation the control scheme provides for slow speed jogging, pre-set speed and slack take-up operation under simple pushbutton control as well as draw speed adjustments on all sections and constant tension control at the calenders and reel.

The ease with which this drive was started

St. Regis takes TEN MAJESTICS for TACOMA with TAILORED TACKLE
FOR TOPS IN STOCK PREPARATION WITH LOWEST POWER and MAINTENANCE COST
Jones
E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of Quality Machinery for Paper Mills
MANUFACTURERS AND DISTRIBUTORS IN CANADA. WATEROUS LTD., BRANTFORD, ONT.

ST. REGIS DEMANDED THE BEST

FOR THE ULTRA-MODERN WOOD ROOM AT THEIR NEW TACOMA MILL

SUMNER MET THE TEST!

SUMNER-BUILT EQUIPMENT

installed in the above plant
includes the following:-

153" Round Log Chipper
Chipper Feed Device
110" Round Log Chipper
Hydraulic Slab Barker
Log Turning Device
Concave Rolls
4-Saw Round Log Slasher
Single Saw Slasher
96" Steam Swing Cut-off Saw
Log Kickers
Log Stop and Loaders
Log Dogging Jaws
Log Haul - Motor Driven
Misc. Transmission Equipment

THE VARIED SUMNER LINE OF FINE MACHINERY FOR PULP, PAPER AND BOARD MILLS IS MEETING THE TEST IN MOST OF THE LEADING MILLS ON THE PACIFIC COAST.

SUMNER
IRON WORKS Since 1892
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up again proved the flexibility, simplicity and dependability of electronic type multiple generator sectional drive.

There are 16 motors on the paper machine, all 230-volt d.c. shunt forced-ventilated GE motors with tachometer generator and with Western Gear Works reducers made in Seattle. The biggest motors are the 400-hp. motors on the couch and each calender stack.

Sheet speed at the winder is easily adjusted for speeds to 4,400 ft. per minute and when once set is held constant automatically by an amplidyne type control. Tension also is maintained at any desired value by field control of a braking generator.

Three 13,800-volt feeders from the Tacoma City Light lines assures maximum continuity of production.

At a site near the new paper mill the city constructed a new substation which includes the three incoming 13,800-volt line breakers, a transformer bank breaker, bus provision for two outgoing 13,800-volt feeder breakers for the two lines to the pulp mill and the barker plant substations and a 10,000-kva transformer bank to serve the new paper mill. The transformer bank, consisting of three single-phase transformers and one spare, was built by Westinghouse Electric Corp.

Westinghouse also built four 750-kva 4160-480-volt power centers (transformers with switchgears) to serve the 480-volt distribution system. Two power centers are located near stock chest pumps and agitators, one in the electric room which has been described, and one at the dry end for load there and at the brown stock transfer chests which are some 200 ft. away at the pulp mill. Induction motor controllers installed in 10 groups throughout the mill were also built by Westinghouse.

Electric power is brought from the Tacoma City Light substation (across the street from the paper mill) by underground cable to the 4-kv switchgear located in the electric room of the new paper mill. This switchgear is metal-enclosed air circuit breaker type (General Electric type MI-6 with AM 5-250 drawout breakers) rated 5,000 volts 250 MVA interrupting capacity. The transformer breaker (incoming supply) is rated 2000 amperes and the eight feeder breakers are rated 120 0ampere; the feeders are for the two 1000-hp synchronous motors of the M-G sets for the sectional drive, for the 480-volt load centers (2 circuits), for the synchronous motor controllers (3 circuits) and a spare. Space is provided for the future additiono f ofur more feeders.

Conductors for 4 kv circuits are single-conductor non-leaded rubber-insulated neoprene-jacketed (General Electric's Super-Coronal-Geoprene) in 2/0 and 500 MCM sizes, terminated without potheads by means of built-up end-bells.

All a.c. motors larger than 200 hp are 4000-volt synchronous rated 0.8 leading power factor as considerable power-factor correction capacity was required since the pulp mill now has no synchronous motors. These motors have group excitation; groups consist of five jordan or four pump motors per exciter, which is rated at 30kw 250 volts. The total synchronous motor capacity is 7,600 HD.

The synchronous motor controllers are of the G.E. Limitamp type rated 5 kv with 250 MVT interrupting capacity and with air contactors.

The use of 2300 volts instead of 4000 volts for mill distribution system was considered bu the use of 4,000 volts made possible a considerable saving. The 10,000 kva transformer bank installed required switchgear and control with 250 MVA interrupting capacity; since 2300-volt equipment (5 kv rating) is not available for that current and interrupting capacity, higher rated and more costly equipment would have been required.

The Drew Air Systems

The eleven systems installed by Drew Engineering in the paper mill are:

1. (Three separate systems) Machine room heating and ventilating including summer cooling for principal working areas.
2. Paper machine hood and exhaust.
3. (Two separate systems) Bottom dryer felt ventilating system.
4. Calender cooling system.
5. Electrical center cooling and ventilating system.
6. D.C. motor cooling and ventilating system.
7. Auxiliary roof exhaust system.
8. Hi-Jet system for dryer section pocket ventilation.
9. Trim conveying system.
10. Air conditioning system for constant temperature and humidity paper testing laboratory.
11. Stamm moisture control system for paper machine.

The equipment for eight of the systems supplying drying and ventilating air, and the six units exhausting from the hood are located on the mezzanine. Three of the former supply air to the machine room proper, the stock preparation department, and the mill basement. These units are thermostatically controlled to automatically maintain minimum temperature on the machine room floor. A device has been incorporated in this control to anticipate the approach of a sweating condition on the ceiling and automatically correct it. The bulk of the air from two of these units can be directed in the summer time from its usual point of application on the roof to the principal working areas near the floor for cooling purposes. This is accomplished by a simple hand switch.

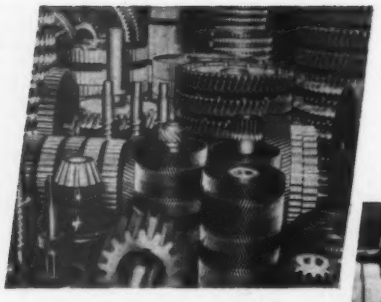
Two more of the units on the mezzanine supply air to the returning bottom dryer felts. A unique feature of this installation is that the conductor piping running the length of the machine is a concrete duct beneath the floor utilizing the basement floor as its top. This arrangement eliminates the usual sheet metal duct that occupies valuable space and is a focal point for dirt and oil accumulation. Thermostatic control maintains delivered air at any desired temperature within the capacity of the equipment.

The room housing the MG and Amplidyne sets, switch gear and transformers is supplied with filtered fresh air in such volumes that ambient temperatures will always be kept at a safe level. The volume is thermostatically controlled by means of motor operated dampers. Manually controlled louvre dampers permit the spent air to exhaust to the outside in the summer or to the machine room basement in the winter when the heat can be gainfully used.

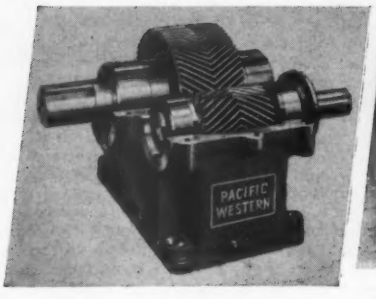
The 15 direct current motors driving the components of the paper machine are forced ventilated by another mezzanine unit. This air is not only filtered but is automatically maintained at uniform temperature by mixing room air from the mezzanine with outside air by thermostatically controlled mixing dampers.

The Drew Engineering Co. Hi-Jet System creates a positive circulation through the vapor pockets of the machine. The nozzle are rigidly held by sturdy brackets bolted to the inner face of the felt roll bearings. Precision blast gates permit full control of the effect of this

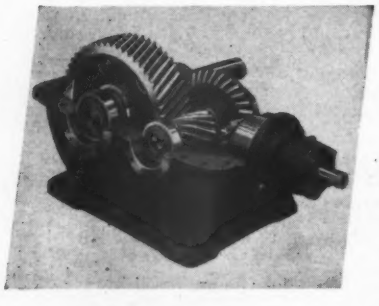
LEFT—Ceiling construction of downstairs floor of paper storage building showing flat slab construction for upper floor and smooth ceiling. RIGHT, Mansaver roll grab with 3-ton Ederer Engineering Co. (Seattle) crane handling roll in storage at end of new St. Regis paper mill. Mansaver Engineering Co. (New Haven, Conn.) made this Grab which has revolving cushions so it can pick up roll from horizontal position, grabbing it slightly off center, and roll will drop automatically to upright position as it is moved to storage.



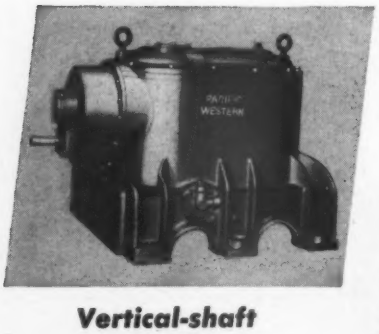
Gears of all types and sizes



Single-reduction speed reducer

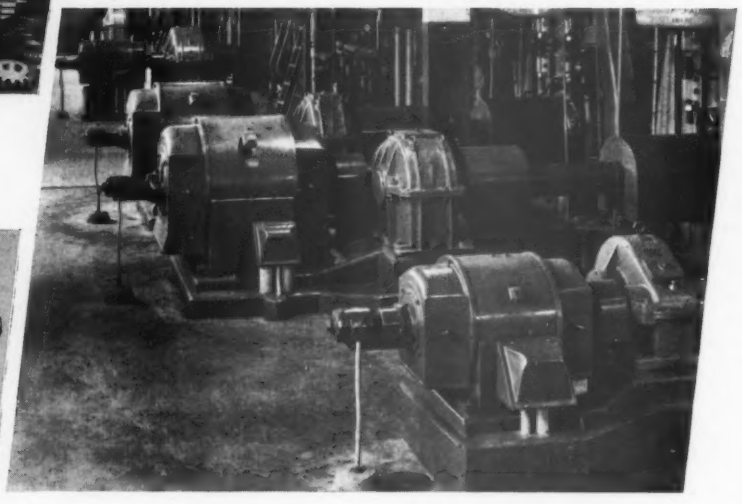


Right-angle speed reducer



Vertical-shaft speed reducer

Pacific-Western herringbone gear speed reducers are used exclusively to drive paper machine at St. Regis Paper Company's new mill in Tacoma.



Specify PACIFIC-WESTERN Speed Reducers for Paper-Machinery Drives

Scenes like the one above are typical in the pulp and paper mills of the northwest, where thousands of Pacific-Western speed reducers are in service. Many of them have had over fifteen years of almost continuous operation. Such popularity results from their proved reputation for efficiency, long life, and low maintenance cost, backed by the complete mechanical power-transmission service available at our three conveniently located west-coast plants.

Our line includes Reeves variable-speed units, Pacific, General Electric motorized, speed reducers, Cone gears and reducers, and the popular Pacific-Western speed reducer and high-speed units. We design and cut all types and sizes of gears, and build special gear boxes and geared machinery.

Fast delivery on many types and sizes of speed reducers from stock. Let us quote on your needs.

Write, wire or phone our nearest plant or office for complete information.

WESTERN GEAR WORKS, Seattle 4, Washington
WESTERN GEAR WORKS, Box 192, Lynwood, California
PACIFIC GEAR & TOOL WORKS, San Francisco 3, California
SALES REPRESENTATIVES: Portland . . . Salt Lake City

AGMA MEMBER

GOOD GEARS FOR OVER 50 YEARS

PACIFIC GEAR & TOOL WORKS ⚙ WESTERN GEAR WORKS

PACIFIC-WESTERN

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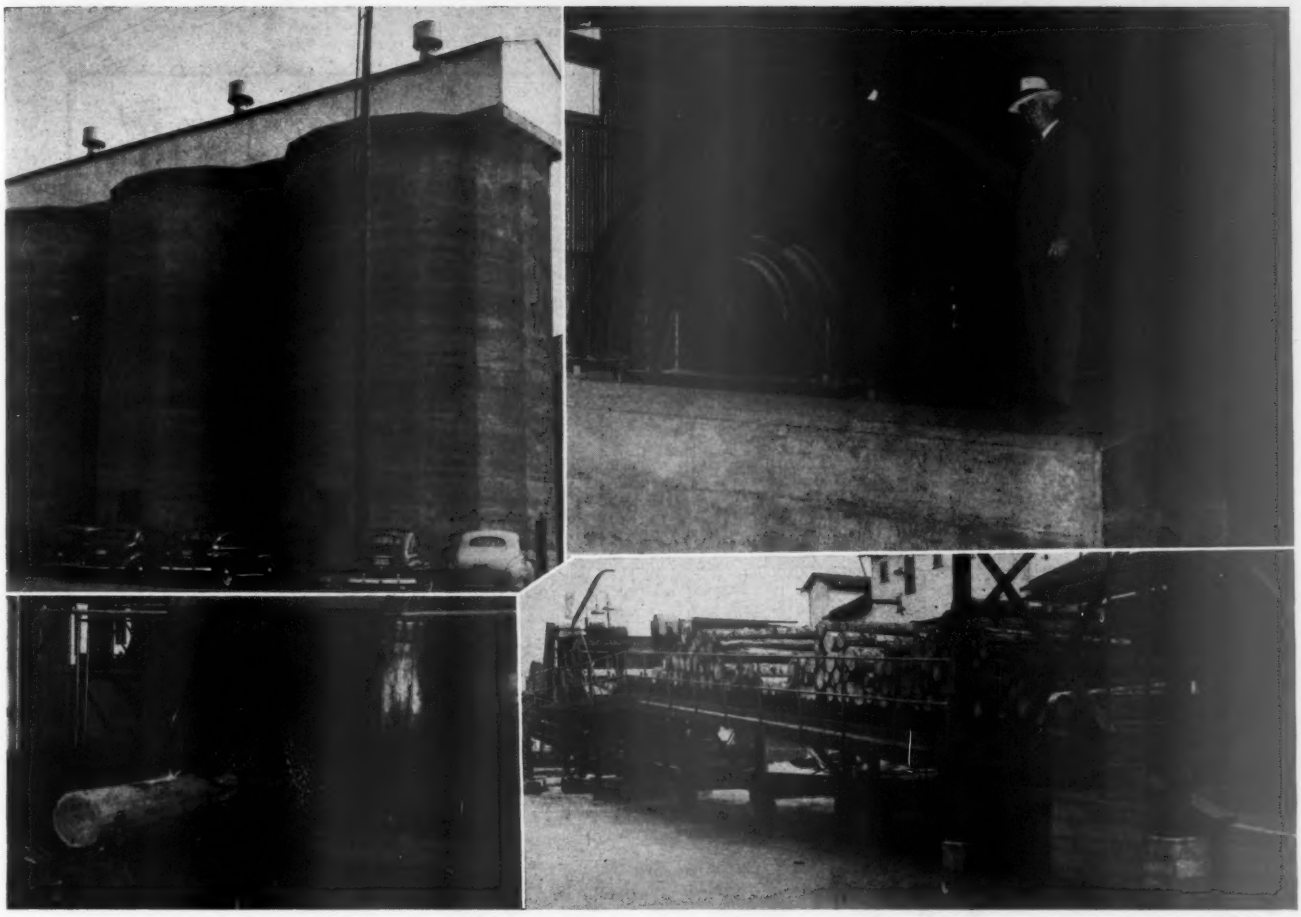
GEAR PRODUCTS



VIEWS IN WOOD PREPARATION PLANT AT TACOMA:

Upper left: The big chip silos, "balance wheel of the mill" where products of various barking and chipping operation converge.

Upper right: Chief Engineer Justin McCarthy stands beside big Westinghouse 1,500-hp. synchronous motor that drives giant chipper, to indicate its relative size. Note foundation for it. Back of him is big Sumner 153-inch chipper. Big Ederer (Seattle) 35-ton crane above services chipper and motor.

Lower left: A big log coming out of the Worthington hydraulic adjustable ring-type hydraulic barker.

Lower right: The type of small round wood which comes into this versatile wood plant. See story for description of diversified barking and chipping.

system. This is the eighth system whose apparatus is on the mezzanine.

The ribbons trimmed from the edge of the sheet at the winder are received at the slitter frame and conveyed directly into the hopper of the Hydrapulper. Apparatus for this system is located on a platform suspended from the basement ceiling below the winder. It is thus readily accessible but takes up no valuable floor space.

The calender cooling system is typical. Because the headers from which rise the individual blows are located in the Hydrapulper hopper, they are made of stainless steel. Fan housing, casing, and ducts outside the Hydrapulper hopper have been insulated to prevent sweating and the attendant deterioration. The air is filtered.

The paper machine hood is built of asbestos board and steel. Sliding access doors at the ladders provide easy access to the walk-ways at the front and rear. Removable panels over the frames the entire length of the dryer section give access to the drives and felt rolls with the machine room crane or tackle from above the hood. Six exhaust units located on the mezzanine and driven by two-speed motors draw the vapors from the hood and discharge them vertically through the roof to the atmosphere.

The air conditioning system for maintaining conditions in the paper testing laboratory was engineered and installed by Drew Engineering. Drying of the sheet is controlled by a Stamm moisture control system furnished by Drew.

Wood Preparation Plant At Tacoma Operations

Although a great deal already has been published in past issues of this magazine on the new hydraulic log barking plants on the Pacific Coast, which are one of the most important engineering advancements in this industry from several angles — wood conservation, automatic continuous flow operation, etc. — there should be some discussion of the new wood plant at St. Regis' operation in Tacoma along with the preceding description of the paper mill.

Although in operation already about a year, this is the first published account of the Tacoma wood preparation expansion, which is all part of the picture of a new Kraft Center in Tacoma.

This barking and wood plant is the first combination of mechanical and hydraulic barking in a modern plant, designed for more diversified wood preparation, perhaps, than any other plant yet built in this industry.

Justin H. McCarthy, chief engineer of St. Regis operations in Tacoma, who was a pioneer in the hydraulic barking developments when he designed one of first such plants at Soundview Pulp Co., has also pioneered in the design of this varied operation in Tacoma.

All construction work and installation work in the new Tacoma barking plant and its three chip silos was done by Howard S. Wright & Co. of Seattle and steel work was by Isaacson Iron Works of Seattle. The barking plant is a steel frame structure with concrete floors. Here again Mr. McCarthy selected H. H. Robertson light but strong corrugated protected metal combined with asbestos and asphalt for siding and roofing for the plant as he did in Everett at Soundview.

Three Kinds of Barkers

The three types of barkers in the Tacoma plant are:

1. Worthington adjustable ring-type hydraulic barker which "erodes" bark from logs up to 5 ft. diameter and 26 ft. long. This saves much wood formerly lost in slivers and also in saw kerf, when these

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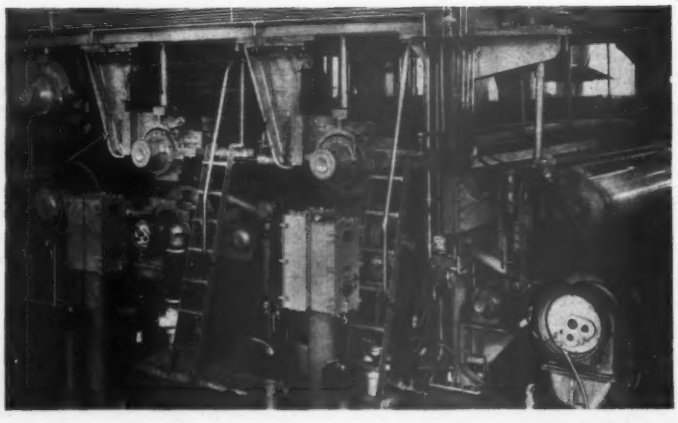
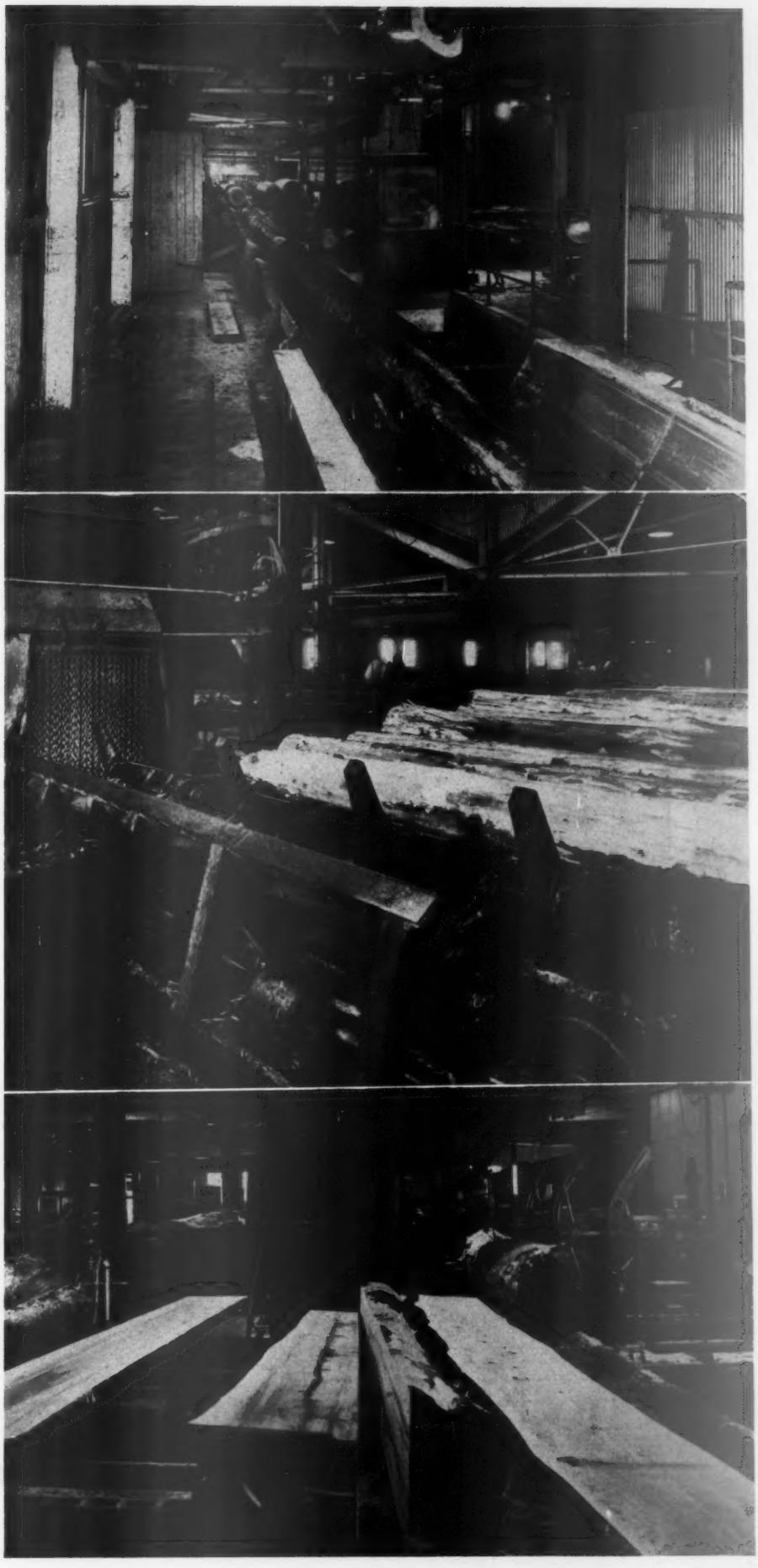


VIEWS IN NEW WOOD BARKING PLANT at Tacoma Mill of St. Regis Paper Co. Top, A view through barking plant from log haul with cutoff saw operator in the middle—Ederer Engineering Co. (Seattle) canting gear, 6-ton crane is over big chipper in background. This straight line flow through to the chipper is wood plant's backbone line.

Middle, Clean logs (up to 5 ft. in diameter can be barked) coming out of Worthington hydraulic barker. Bottom, Breakdown of wood too wide for 34-inch chipper spout. Carriage is by Allis-Chalmers Mfg. Co., with Prescott Iron Works electric dogs.



giant logs had to be reduced to small pieces—slabs and cants—for mechanized barking. This is the second Worthington large log hydraulic barker installed—the first being at Soundview Pulp Co. (description in **PULP & PAPER**, Oct. 1946 issue).

2. A Sumner Iron Works (Lowell, Wash.) hydraulic slab barker of the type installed in some other Coast mills, designed for handling 4 ft. long, 14 in. diameter slabs or split wood, regardless of whether it is split once or twice or the angle of splitting. Wood is fed through a steel-housed machine end to end over bottom rolls with bark upward and nozzles striking downward.

3. A 12 by 45 ft. Fibre Making Processes M-bar barking drum, a new type of machine for mechanical barking of 4-ft. long round wood, smaller than the big western logs. It is an improvement over the U-type Fibre Making Processes machine.

There are three chippers supplied by Sumner Iron Works. One is a 153-inch chipper with 34-inch spout for large logs. It has six knives and operates at 277 r.p.m., reducing giant logs to chips in a few seconds. The other two are conventional 110-inch and 72-inch chippers.

An engineering feature of this plant is the manner in which a great amount of wood preparation and wood handling equipment was arranged comfortably and efficiently into a comparatively small area. Another noteworthy point is the straight line operation for large logs, which pass butt to butt through the Worthington barker. The "backbone" line of the mill runs straight from log haul to the big chipper.

Seven kinds of wood come into the mill from three sides now, all finally converging on the 60-inch belt to the top of the three concrete silos where a Link-Belt tripper unloads the belt. There are plans for an eighth kind of wood—veneer chips—and this would call for an unloading pit and conveyor which would bring wood in from a fourth side direct to the 60-inch belt.

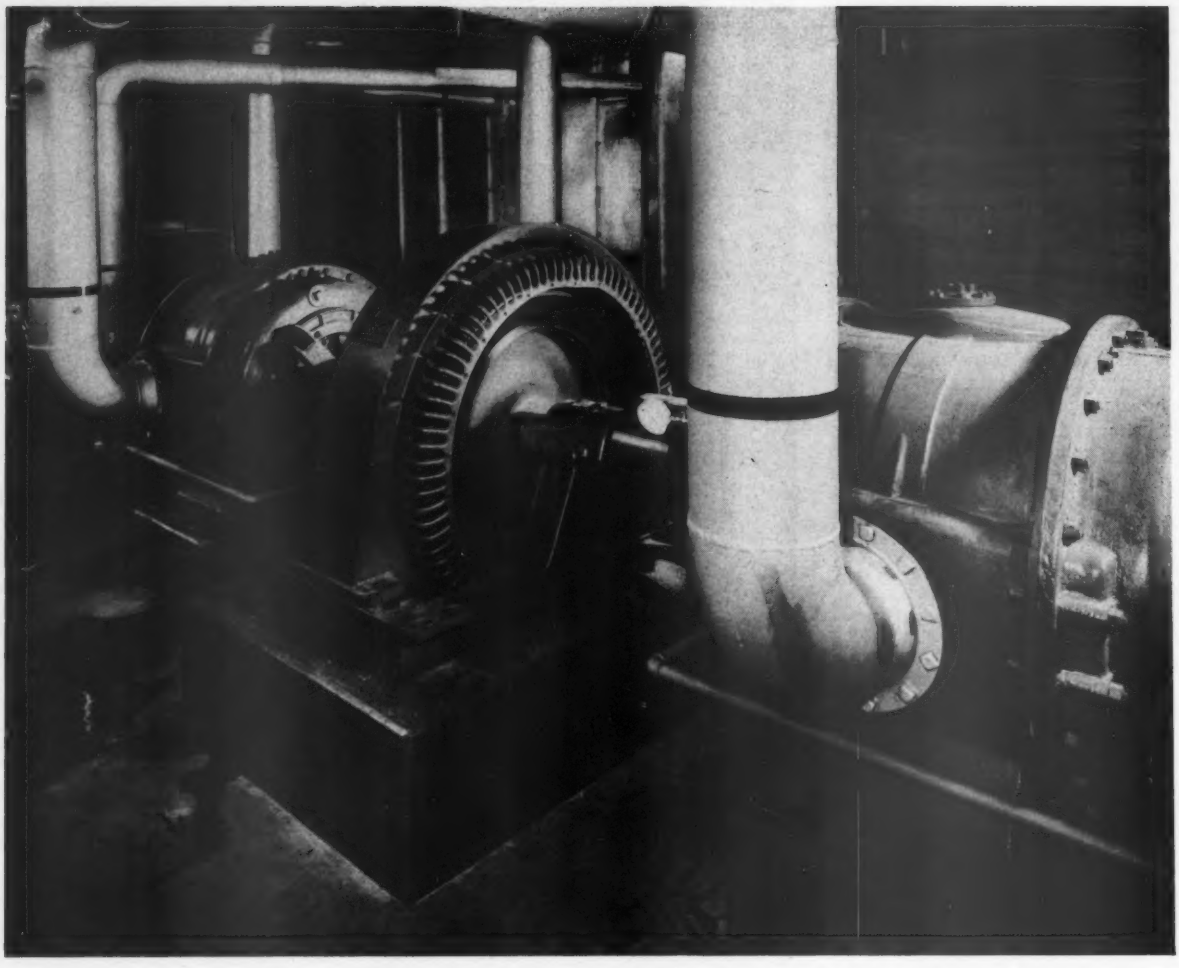
Seven Kinds of Wood

The seven kinds of wood now used and their routes follow:

1. Rafted logs up to 5-ft. diameter—prime logs—which go up the main log haul to the Worthington barker and 153-inch chipper, except for those over 34 inches diameter which are broken down in a band mill served by an Allis-Chalmers breakdown carriage with Prescott Iron Works electric dogs.

2. Truck logs dumped at the mill, which go into the water and then up the

(Continued on page 57)



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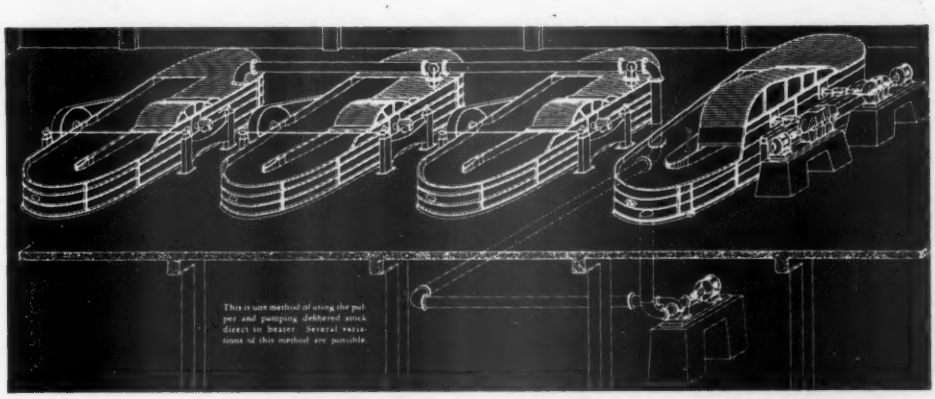
b. To defiber unbleached sulphite or kraft preparatory to bleaching.
c. To re-slush broke.
d. For color or chemical blending.
e. To hold down power costs.
f. To reclaim floor space.

To use "refining" beaters as pulpers is a reckless and costly operation—high repair factor. To use this rough-and-ready pulper for such work is economical operation—virtually no maintenance at all.


This is one method of using the pulper and pumping defibered stock direct to beater. Several variations of this method are possible.

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- Two Model 70-1 indicating Exact-A-Load for pneumatic loading of calender stacks.
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- Model 70-54 recording Exact-A-Load for creping dryer press rolls.

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ST. REGIS

(Continued from page 53)

main log haul to the big hydraulic barker and big chipper.

3. Reclaimed logs from clean-up of logging operations which are brought in by railroad cars. These may be dumped in water and up the main log haul to large barker and chipper, but if they are small they can be diverted to the drum barker.

4. Eight-ft. round wood brought in by truck, which goes through a single saw slasher for reduction to 4-ft. lengths and then through the drum barker, and on to the 110-inch chipper.

5. Eight ft. slabs brought by railroad car, which go to the Sumner slab barker and then to 72 or 110-in. chipper.

6. Clean split wood from farmers, which goes direct to 72 or 110-inch chipper.

7. Clean veneer cores and other clean sawmill leftovers, which go direct to 110-inch chipper.

In the yard a No. 16 Blaw-Knox pulpwood grapple lifts wood delivered by car and places it on conveyor leading to barker and chipper for that particular kind of wood. It is used with a P & H yard and a half crane.

Two 1250 hp. 3,600 r.p.m. 2,300-volt General Electric motors drive the two Worthington 1,500 g.p.m. barker pumps. The hydraulic barker has three equal ring and nozzle 120-degree segments, two adjustable, so it may be drawn close or expanded depending on diameter of the log. Water pressure at nozzle is up to 1,400 lbs. per sq. in. Number of nozzles used (there are 36 in all) varies with contraction or expansion of the "ring" of segments around the log. Required nozzles are selected electrically by master switch and flow of water is controlled electrically. Worthington accumulators of hydro-pneumatic air bottle type are an important part of the barker equipment to make operation more economical. Their function is based on expansion of the compressed air between a high and low pressure, displacing an equal amount of water used to augment the flow from the pumps. The displacement is replaced by the pumps during the shutoff period of the spray valves. This enables selection of pumps and connecting motors to be based on average and not peak demand as the accumulators "iron out" peak water demands.

A barker operator is stationed in a glass-enclosed room integral with the barker housing. He has good visibility of the operation he controls, moving logs into and out of the barker as well as controlling the barker operation with a number of push buttons and hand levers.

Big concave transfer rolls weighing one to 1½ tons each move logs through the barker at a speed of 2 to 4 ft. a second even when the logs weigh several tons themselves. Three 30 hp. d.c. motors with 60 kw. motor generator set and controls supplied by Westinghouse are used to drive rolls through the barker. Western Gear reducers made in Seattle are used here and at various other points throughout the plant, there being 19 in all. All high pressure piping and valves between pumps, accumulators and barker are by Crane & Co.

Sumner Iron Works made a great amount of heavy duty equipment in the barker plant, including three sections of the big transfer rolls in the barker line; log stops, loaders and log kickers at different points, the log transfer to barker, off-bearing device from the third section of rolls, a log turning device, a section of rolls at the band mill and off-bearing device behind it, transfer and chain feed to the big chipper, an 84-inch cutoff saw frame and cylinder, a hoist for unloading wood from trucks, besides their equipment already mentioned.

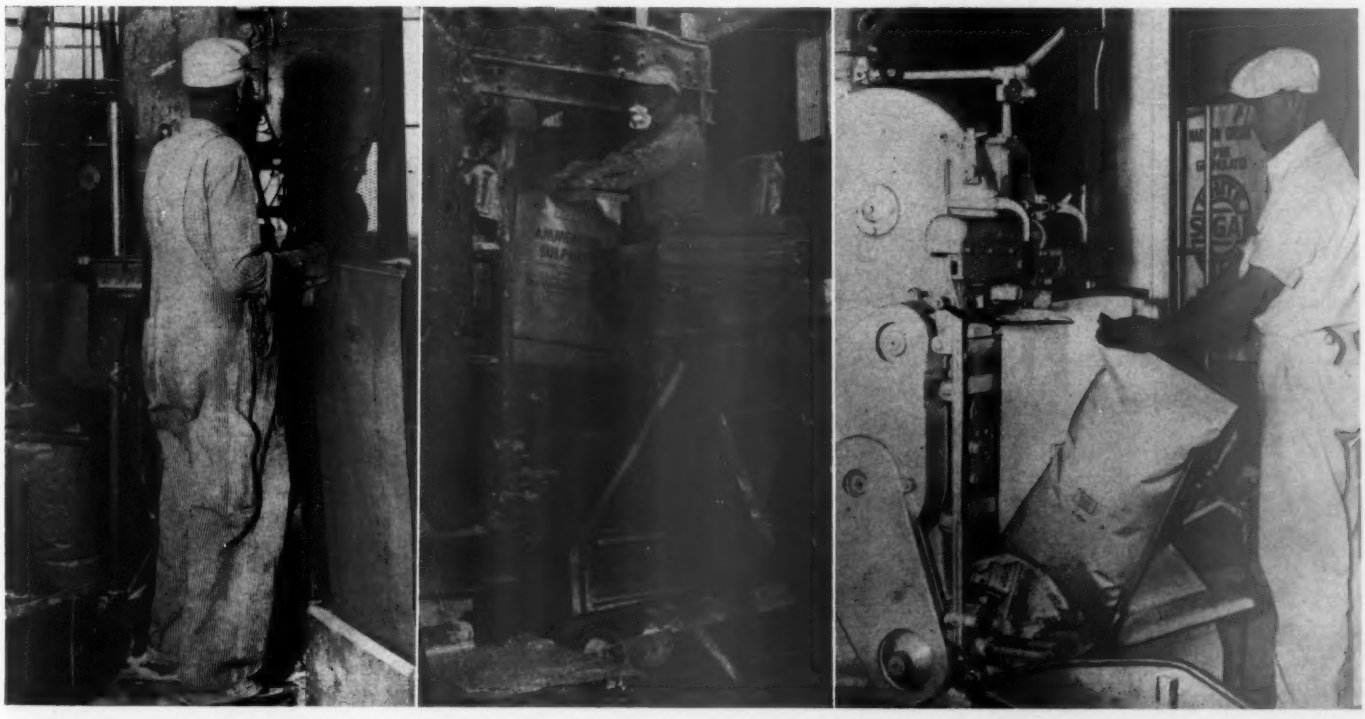
The big Sumner chipper is driven by a 1,500 hp. 277 r.p.m., 2,300-volt, two-bearing coupled type Westinghouse Electric Corp. synchronous motor. There is a Vickers VC-148-C-3 DD-1 hydraulic pump with counterbalance and four-way valves for operating the chipper apron. A 35-ton Ederer (Seattle) bridge crane is above here to service the big chipper and big motor. Another Ederer crane of 6-ton capacity with motorized hoist is in the plant for use as canting gear on any of the five transfers.

There are three Tyler-Niagara dewatering screens. James Brinkley Co. of Seattle supplied four chip screen feeders and miscellaneous troughing and return belt idlers from Chain Belt Co.

The three big concrete chip storage silos, of a type which in a general way, are a new post-war development in the pulp industry, are a "balance-wheel" for the pulp mill, holding enough chips to keep the mill going more than a day. An interesting adaption of structural steel design is the suspended steel hopper inside each silo. Hoppers were designed with 16 flat panels made up so the valley channel

(Continued on page 62)

ST. REGIS BAGS ARE USED in many industries. Left—Packer filling 100-lb. bags of flour at Colorado Mill & Elevator Co.'s mill in Denver. Center—Ammonium sulfate is packed in St. Regis multiwall paper bags. Right—Packer filling 100-lb. sugar bags at a factory in Nyssa, Ore.



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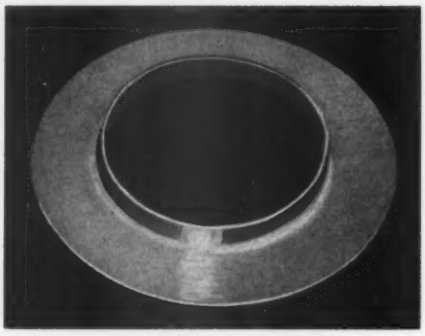

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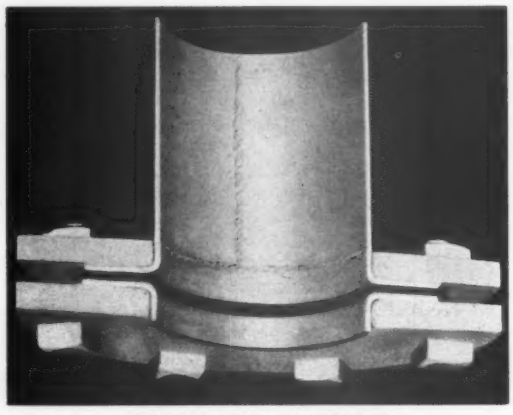

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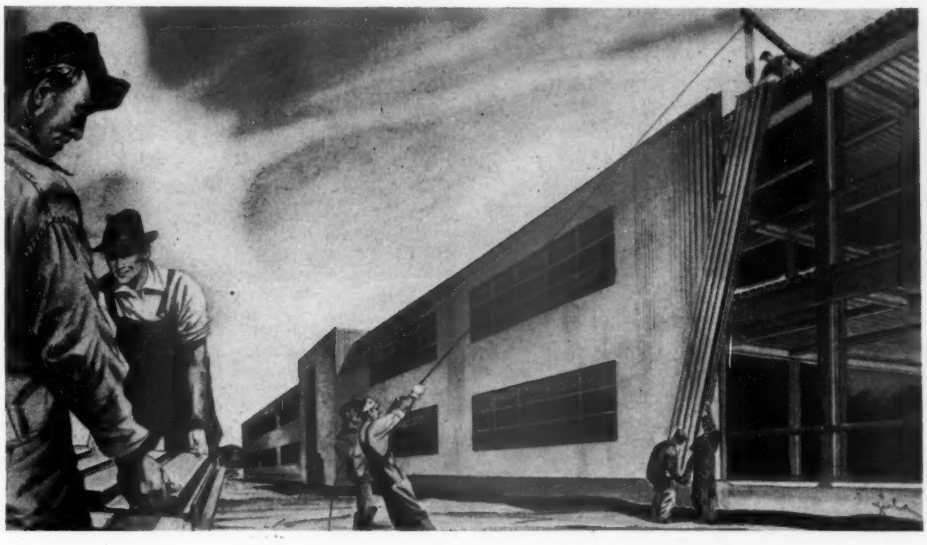

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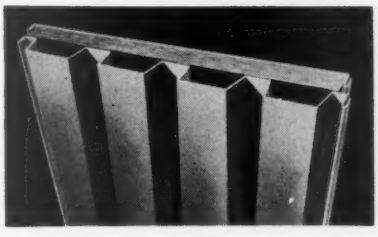

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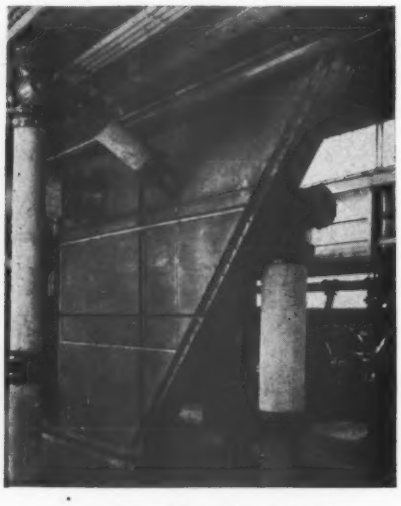

Saveall Hopper 2'0 x 12'-0 x 14'-0 Deep

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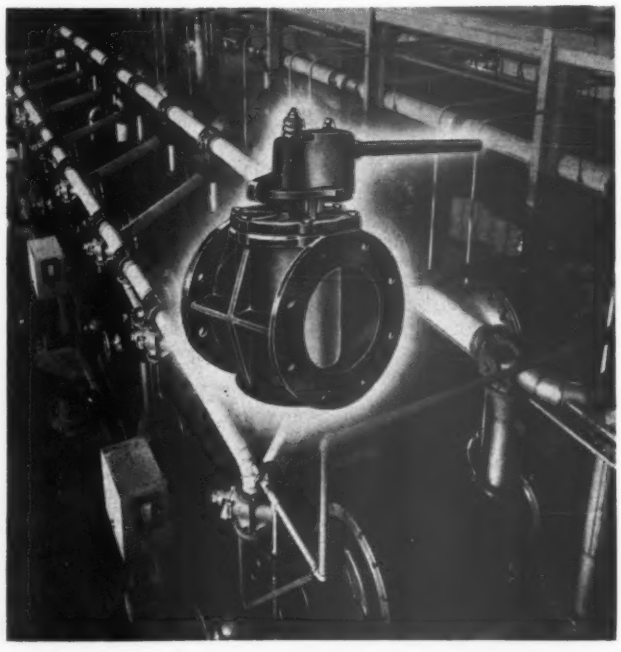

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Tacoma Plant, St. Regis Paper Co., with Paper Mill in foreground and Hydraulic Barking Plant in upper left. Inset—Interior of Paper Mill during construction with barking plant in background.

Howard S. Wright & Co. know-how has again contributed to expansion of the Pacific Northwest's Pulp and Paper Industry. As General Contractor, it performed all general construction work, supervised sub-contractors, and installed all equipment for St. Regis Paper Co.'s new Hydraulic Barking and Chipping Plant as well as it's new Paper Mill. The Howard S. Wright & Co. organization has the experience and facilities to give the entire industry specialized service in all phases of its expansion program.

HOWARD S. WRIGHT & CO. INC.

GENERAL CONTRACTORS

Seattle, Washington

ST. REGIS BAG PLANTS in the West are integrated with the Tacoma Kraft mill. View of St. Regis bag manufacturing floor in Emeryville, Calif. No. 1 production unit in foreground; No. 2 sleeve and miscellaneous bag unit, right center.

between adjoining panels bolted back to back with sufficient members at right angles to the valleys to transfer the stress across the panels around a complete 42-ft. circle. A revolving plate feeder furnished by Link-Belt Co. is at the bottom of each bin. At the suggestion of Mr. McCarthy there is a special close-coupled vertical output shaft reducer driving a ring gear on each rotary feeder, for discharging of chips from the silo and on a belt to the pulp mill digesters.

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Kraft Pulp Division

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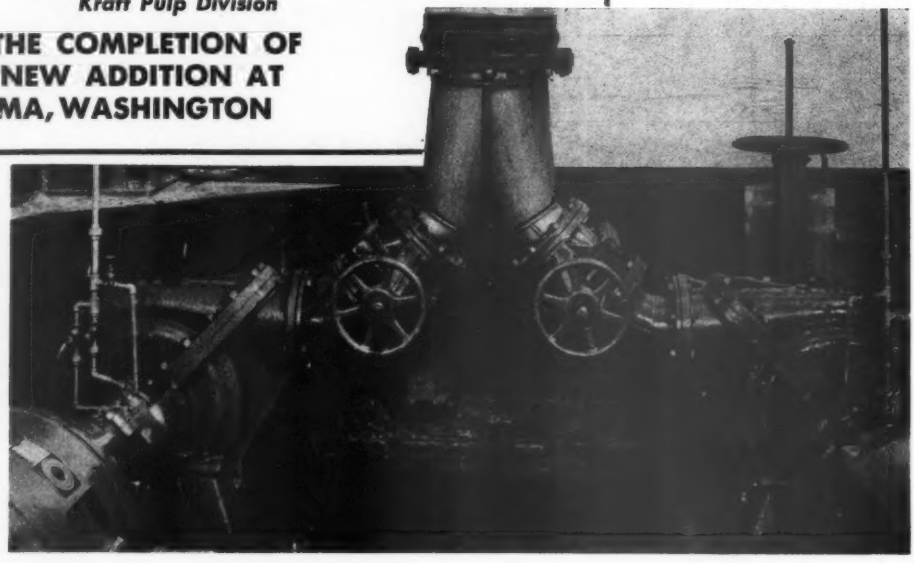

PHOTOGRAPHS show a few of the GOULDS PUMPS installed in this new plant.

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H. S. Ferguson Wins Award

VETERAN ENGINEER GETS GOLD MEDAL

On February 21 at the Commodore Hotel in New York City the Technical Association of the Pulp and Paper Industry awarded to Hardy Smith Ferguson, world renowned consulting engineer, its highest award for achievement—the Gold Medal.

In times past, the award has been given to men for one or more technical developments in the manufacture of pulp or paper, but in 1949 the Gold Medal is received by a man whose entire lifetime has been one of achievement and whose history is, in itself, a record of the progress of the industry. For the senior partner of Hardy S. Ferguson and Co., Consulting Engineers, entered the industry fifty-seven years ago—and this more than half a century has seen almost every one of the important developments which constitute the modern pulp and paper industry.

Biographical data on Mr. Ferguson is meager; he has never been a man to seek publicity. And when **PULP & PAPER** interviewed him at 200 Fifth Ave., in the offices he has occupied since 1911, Mr. Ferguson was much more ready to talk of his children and grandchildren than of himself. However, it is on the record that he was born in Chelsea, Mass., in 1868, and attended the high school at Newmarket, N. H. He received his B.S. degree from Dartmouth in 1889, and two years later his C.E. degree from the Thayer School of Civil Engineering at that college. His intention was to go into the field of hydraulic and sanitary engineering, but in that same year he became assistant engineer with D. H. and A. B. Tower, Holyoke, Mass., and was appointed resident engineer supervising the construction of the newsprint paper mill of Glens Falls Paper Co., then being built at Glens Falls, N. Y. Following this he was resident engineer of the Rumford Falls Paper Co. mills; and of the sulfite pulp mill of the Rumford Sulphite Co., built at Rumford Falls, Me., during 1892, '93 and '94.

It was the initial turning point for young Mr. Ferguson and for the industry as well. It was a fortunate connection and a great responsibility for a young man. Tower organization was then the only true pulp and paper engineering organization in existence, and is still remembered for its design and construction of almost all the famous Holyoke mills.

Entered Private Practice

In 1898—having gone into private practice — he was commissioned to design and supervise construction of the Great Northern Paper Co. newsprint mill at Millinocket, Me. He had met Garret Schenck, president of Great Northern, when Mr. Schenck was general manager at Rumford Falls.

HARDY S. FERGUSON, distinguished pulp and paper mill engineer, whose monuments of illustrious career are found in all regions of North America.

The Great Northern mill at Millinocket was really the beginning of the big newsprint paper mills of today. "Many of our innovations were forced by the size of the mill," Mr. Ferguson told **PULP & PAPER**. It was probably the first paper mill generally operated with electric motors, made necessary because the area covered by the mill was too great to run shafting from the source of the motive power to machinery located at considerable distances.

Also at Millinocket was what is believed to be first use of an inclined belt for carrying chips to digesters; also the first continuous drum barker, built from designs of Mr. Ferguson. There had been "batch" barkers in which the wood was enclosed and tumbled, then opened for dumping the "batch." But this new barker had two joining drums on trunnions. It was smaller than barkers of today, of course, being about seven or eight ft. in diameter and 30 ft. long.

Designed for the Years

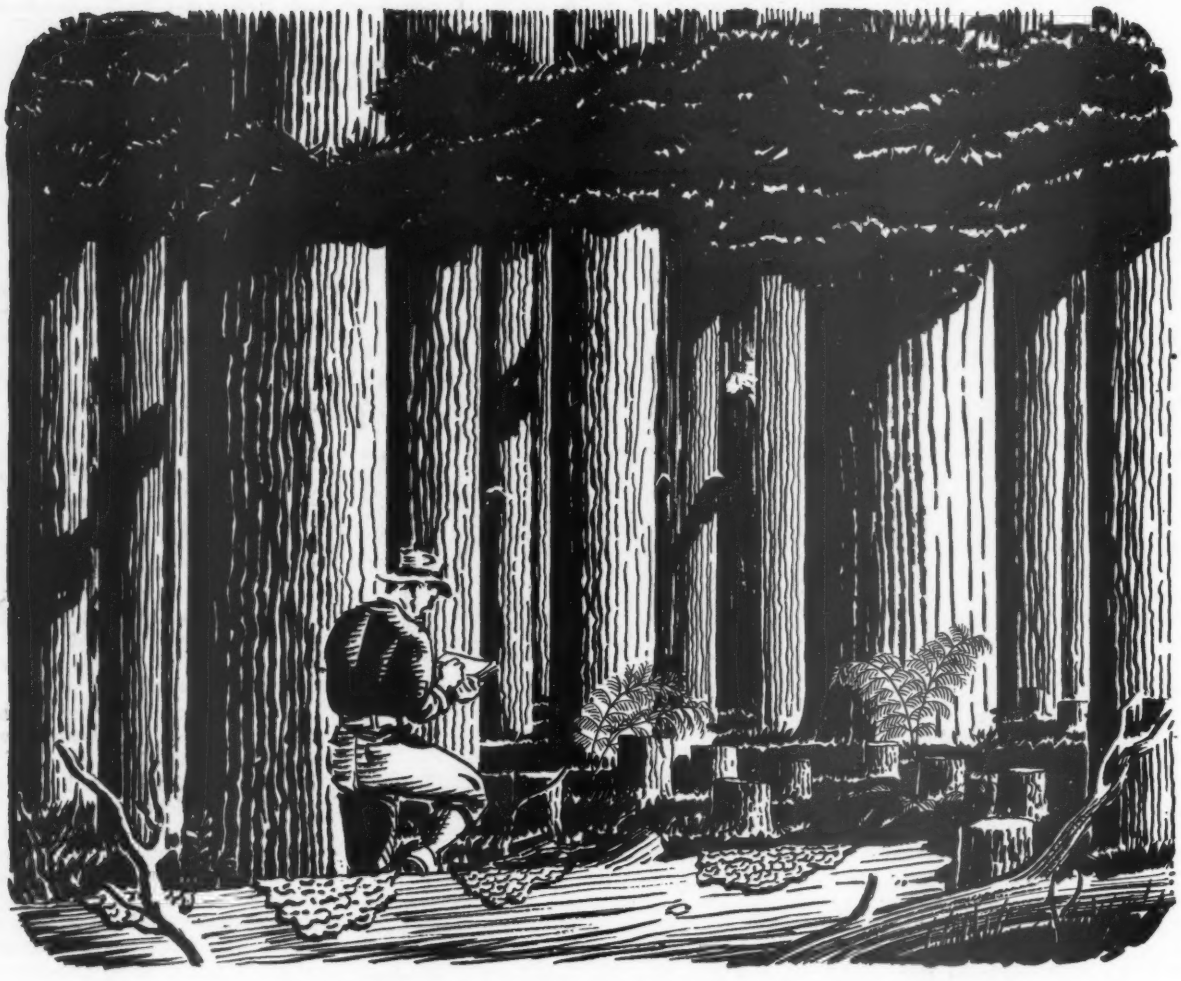
An interesting thing about the Millinocket mill is that its design has stood up through the years. A year or two ago a visiting field editor of this magazine was told that all improvements made since the mill was completed in 1899 fitted perfectly into the original design. Later, Mr. Ferguson designed and built the smaller Great Northern Paper Co. mill at East Millinocket.

After supervising construction of that mill, Mr. Ferguson remained with Great Northern until 1911 as chief engineer. During that time he had an arrangement with Garret Schenck, probably unique in the history of the industry—he remained in private practice and retained a staff of 15 or 18 men at Millinocket for this purpose. During his period as chief engineer he designed other pulp and paper mills, in addition to the extensive system of water power developments and storage reservoirs, for Great Northern.

In 1911 he opened offices at 200 Fifth Ave., N. Y., and there he may be found today—when he is not traveling in the interests of clients which include some of the greatest pulp, paper, and hydroelectric companies in the world. There

(Continued on page 116)

EVEN TODAY Mr. Ferguson has few quiet moments and they are usually with his children and grandchildren. Here he is shown in his Dobbs Ferry home with four of his grandchildren.



THIS IS PRE-LOGGING

Pre-logging is the harvesting in advance of smaller trees which otherwise would be damaged or destroyed if left until the big trees are logged. This isn't as simple as it sounds. To pre-log efficiently meant devising special new and mobile logging equipment.

However, the effort is justified in the recovery of many cords per acre of good clean material, highly desirable in the manufacture of sulphite or sulphate pulp.

Pre-logging fits into the method of "block" harvesting as used in the Douglas fir region, where forest lands are clearcut in a patchwork pattern, leaving blocks of seed trees as a source of regeneration. This is all part of the cycle of growth, harvest and regrowth known as Tree Farming.

Weyerhaeuser's use of the pre-logging method is another step toward more complete utilization of the timber crop.

out with Rivets

. . . in with O-KNI-CO-LOK

Method and ease by which knife may be assembled. Eliminates all rivet trouble.

and no more rivet trouble

O-KNI-CO-LOK dis-assembled. Ordinary slitter knife is in center. Note small button on the O-KNI-CO-LOK which fits into any rivet hole on slitter knives of this type.

Only seconds are required to assemble or dis-assemble the new O-KNI-CO-LOK slitter! These two operations are completed by means of a spanner wrench.

The projecting button shown on the O-KNI-CO-LOK above, slips into any of the holes designed for all rivet type slitters. Knife is held firmly in place and locked to the shaft. Nut continues to tighten as assembly revolves.

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DISSOLVING PULP EXPANSION

West Virginia Considers New Mill

West Virginia Pulp and Paper Co. is considering building another mill at Charleston, S. C., to make dissolving pulp for rayon or plastic products from hardwoods. This follows the decision of International Paper Co. to build a similar mill at Natchez, Miss. There has been discussion of a third one, also, in the Southeast.

But Theodore A. Cook, resident manager at Charleston, cautions that while "we and others have been experimenting extensively (in hardwood dissolving pulp) for which we believe there is a growing market, there is," he said "some danger of over-production."

"Given the cooperation of the community and public authorities concerned, we hope to be able to work out a project which will bring a good deal of new business to the plant and to Charleston," he said, but added that "there are a number of serious technical and economic problems to explore before we can reach a firm decision."

J. D. Cowan, assistant manager in charge of production at Charleston, has been given special assignment in connection with the study of these problems.

L. F. Thompson, assistant manager in charge of administration, will for the time being become general assistant to Mr. Cook.

C. A. Shoudy, formerly paper division superintendent, will assume a newly created position of general superintendent.

J. A. Hoover, formerly machine supervisor, will assume the position of paper division superintendent and E. M. Garrett will assume the position of machine supervisor.

G. W. Swallow, formerly in the engineering design division, has been promoted to the position of paper division engineer. A new position of chemical superintendent has been created which will be under the direction of C. B. Rhoads. In addition to his past duties of having charge of recovery, lime burning and liquor making, by-products at this plant will be under his supervision.

T. A. Willingham, pulp fiber division superintendent, also has been given additional duties. The wood yard and chipper divisions will be placed under his supervision.

J. D. Wieters, formerly assistant supervisor of the by-products division, has been promoted to additional assistant to Mr. Willingham, assuming most of the duties formerly performed by J. T. Walker, who will be assigned to special duties in the manufacture of pulp.

Arnold Werle has been promoted to the position vacated by Mr. Wieters.

Rayonier, Inc. now has the only dissolving pulp plant in the South at Fernandina, Fla., but uses soft wood (pine) instead of hardwood, and the sulfite, instead of sulfate process, as the new plants are considering.

Construction of the electrostatic precipitator and 250-ton recovery unit is moving along rapidly. This work is being done by Piping & Equipment Constructors, Inc., of Greensboro, N. C. The steel frame is completed, concrete floors have been poured, and the concrete roof is completed. Installation of the equipment and ductwork has begun and is proceeding on schedule, and installation of the Babcock & Wilcox boiler has begun. The Air Heater tubes have been rolled and the steam generating tubes and side wall tubes are being installed. Structural steel for the Kopper's electrostatic precipitator is completed and is ready for the installation of tile and electrical equipment.

New Department for American Cyanamid

Formation of a new Product Development Department was announced by American Cyanamid Co. of New York. This department, with George W. Russell as manager, will determine whether there are economic uses for selected products developed in Cyanamid's research laboratories and will report directly to the company's vice president in charge of research and development.

Big Pulp Shipment From U. S. To European Mills

More than 12,000 tons of Pacific Northwest pulp was shipped to ports in France and Germany in late January from West Coast ports was contracted for by the overseas buyers and Parsons & Whittemore-Lyddon & Co., New York, factors in exports of North American pulp, arranged the business. The pulp was produced by the Soundview Pulp Co., St. Regis Paper Co., Puget Sound Pulp & Timber Co., and Spaulding Pulp & Paper Co.

Prior to the war the Scandinavian mills held the lion's share of production of resale chemical woodpulp, but the production in the U. S. has since increased so that larger quantities are available for export. This unprecedented large delivery of pulp from the United States to the European continent is indicative of current reports that the balance of production of market chemical pulp has shifted to North America.

While a substantial part of the transaction was financed through private arrangements, the bulk of it was made possible through the Economic Cooperation Administration's European recovery program. The pulp will be distributed to some 42 paper mills in France and 56 paper mills in Germany, some of which are dependent on this initial delivery to resume operation.

PART OF A RECORD CARGO of Washington state pulp shipped to LeHavre, France, on the S. S. Andalusia, through Parsons & Whittemore, Inc.

Offices and representatives in 60 cities

in the United States, Europe, Latin America, Africa, and Asia

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The recently established Bulkley, Dunton office in Johannesburg, Union of South Africa, is the 60th link in our worldwide chain of supply contacts and outlets. Through this network of offices and representatives we offer unique market coverage now extending to four continents.

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"The outlook for a permanent timber supply in North America sufficient for all our needs is more hopeful today than at any time in the past."—Royal S. Kellogg, secretary of Newsprint Service Bureau, New York, in address at N.Y. State College of Forestry.

BOWATER'S HITS WOOD COSTS
New Equipment Halves Logging Season

Written for **PULP & PAPER**, 71 Columbia St., Seattle 4, Wash. (Copyright, 1949)

Newfoundland's timber is being logged in rougher, boggier and, often, steeper country than most of the logging lands of Canada. This is the contention of the woodlands men serving the 1,000-tons-a-day Bowater's Pulp & Paper Mills in that oldest of all British colonies, which is soon to become a province of Canada.

Four airplane flights across that thickly-wooded 40,000 sq. mi. island, dotted with thousands of lakes and ponds and an overland trip into the woods by pick-up truck and by foot, have convinced **PULP & PAPER'S** editor that they must be right. It really is rough country, but that didn't deter the Bowater's Woods Department from confidently investing substantially in mechanized logging equipment. They have successfully made some of the most interesting and unusual applications of mechanized equipment to be seen anywhere today.

ALBERT MARTIN, who became Woodlands Manager of Bowater's operations in Newfoundland last year. He is 48; been with Bowater's 27 years.

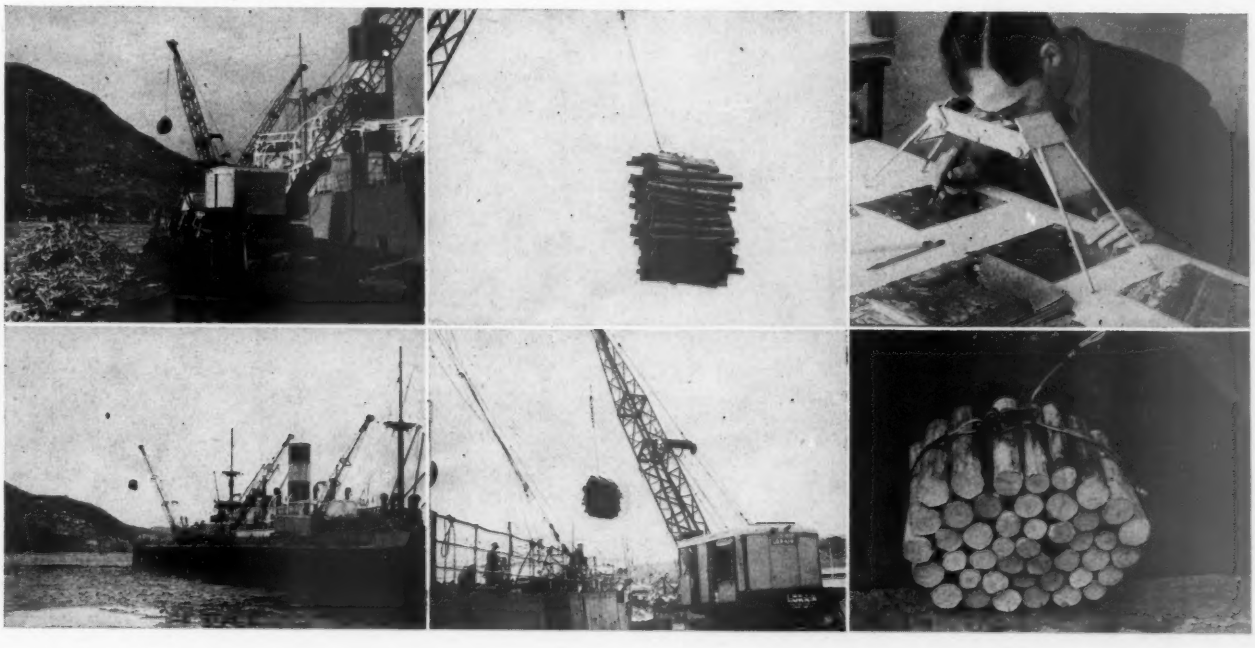
It may still be a year or two before the job is really done—or before the cautious Bowater's men are ready to say they've reached their ultimate goal—but for our money we'll say right now that Bowater's is over the hump and can see ahead to tremendous savings in time and money as a result of the pioneering they have done in mechanization.

Costs could possibly even be reduced

THE FOUR VIEWS AT LEFT taken by PULP & PAPER editor in Newfoundland show three big Lorain cranes from Thew Shovel Co., Lorain, O., unloading wood from a ship at Corner Brook. These are Lorain 80's, the ship, the Avis Glen, and the three cranes unloaded as much as 135 cords an hour. The operation is described in this article.

Top right: TOM O. WOODS, of Bowater's Surveys Division, shown timber cruising with aerial photos.

Lower right: A bundle clasp developed at Bowater's.



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Replaceable tool-steel blade and chain track

Rip-Cross chain cuts any type of wood rapidly

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Special McCulloch magneto for fast, positive starting

Bow and chain swivel full 360°

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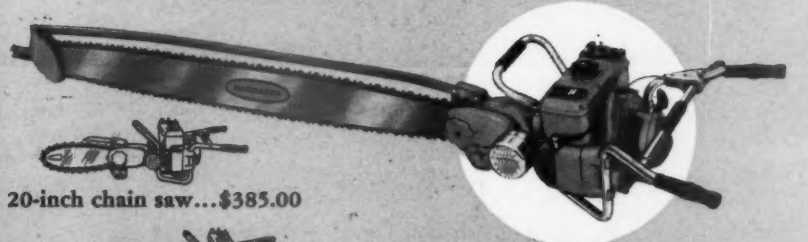
6 models available

The same powerful, light-weight McCulloch power unit fits all 6 models of blades and bow.



20-inch chain saw...$385.00

30-inch chain saw...$395.00

40-inch chain saw...$405.00

50-inch chain saw...$415.00

60-inch chain saw (model illustrated above)...$425.00

20-inch bow saw...$425.00

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Bow saw ☐ Straight-blade saw ☐ (Check type of information required)

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half before this job is finished. Wood can be, and is being delivered—so far, in small quantities—to the mill at Corner Brook, on the western coast of Newfoundland, in the same year it is cut, saving a big carry-over cost. It takes from May to March, when horses and sleds are used to bring the wood out on the packed snow. Now—before the snows had fallen this past fall, **PULP & PAPER** saw a mechanized outfit with its job done in October, wood all delivered to the riverside in 5 months—as against 10 months of the old logging season. Others were finishing in December. This means labor savings and food and camp up-keep savings.

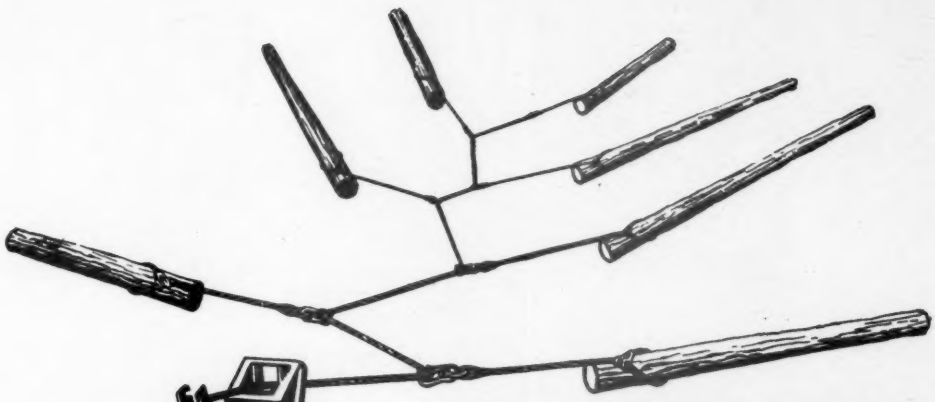
This job is being done with improved Hyster arches made in Portland, Ore., mounted on D7 Caterpillar and TD18 International tractors. The Hyster arches seen in use were equipped with two crab drums and were picking up and hauling two brows or bundles of 4-ft. length wood an average of 3,000 feet in steep and rough terrain and dumping the loads at a riverside landing, whence it was being driven to the mill. C. A. Pippy of St. John's, Nfd., was agent for Hyster Co. of Portland in supplying the Newfoundland operations.

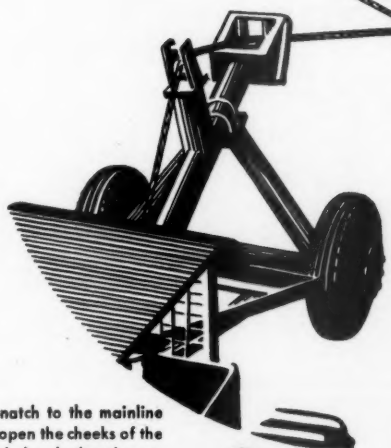
A protecting tailboard was added to the Hysters recently to rest the bundles and keep them out of traps and not a single load was lost in the rough operations viewed by **PULP & PAPER**. Another improved piece of equipment—a geared steel tightener supplied by Coffing Hoist Co. of Danville, Ill.—was on the way to Newfoundland, and with this attachment to the cable for tightening bundles, the Hysters were to pick up 2 bundles at once and carry four bundles per trip. Each brow or bundle is from 1 cord to 1¼ cords.

Bowaters' of Newfoundland now has 28 Hysters. They also have purchased 15 new big Caterpillar D7 tractors for road-building and hauling. And they purchased 70 other big International TD-18 tractors from the U. S. Army, some coming from

TOP VIEW: PORT OF CORNER BROOK, Newfoundland, showing Bowater's mill. At close of navigation about twice as much wood is at the mill. Rear center is limestone quarry. There is 2,250 ft. of dock here.

BELOW: Cutover area near Hawkes Bay in Newfoundland, showing also some virgin timber in foreground. Note logging roads.

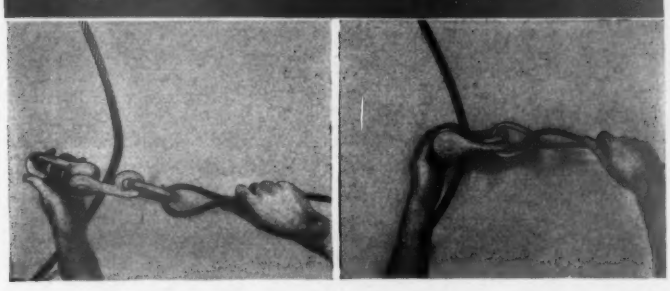




To snatch to the mainline just open the cheeks of the block, hook the sheave over the line and swing the cheeks back in place. Then pull in the mainline.

The bunching is automatic as the line runs through the snatch blocks.

HOW TO BUNCH A FULL LOAD OF LOGS WITH ONE PULL



The new CARCO Rigging Catalog states, "The Marathon Snatch Block provides one of the fastest and easiest systems ever developed for bunching scattered light logs for a high lead, arch or log cart load.

"Chokers with snatch blocks attached are pre-set in the woods. The mainline is taken out and hooked onto the most distant log of a group which will comprise the load. The line is then pulled sideways or zig-zag fashion to each log and each snatch block is hooked over the mainline. As the line is pulled in, the logs are automatically bunched. The system accomplishes bunching and hauling in a single operation."

The new CARCO catalog also shows manganese ferrule choker hooks, tractor hooks, eye sockets, a new exclusive clevis hitch, manganese drawbar hooks, and other rigging fittings for logging.

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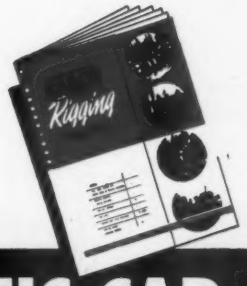

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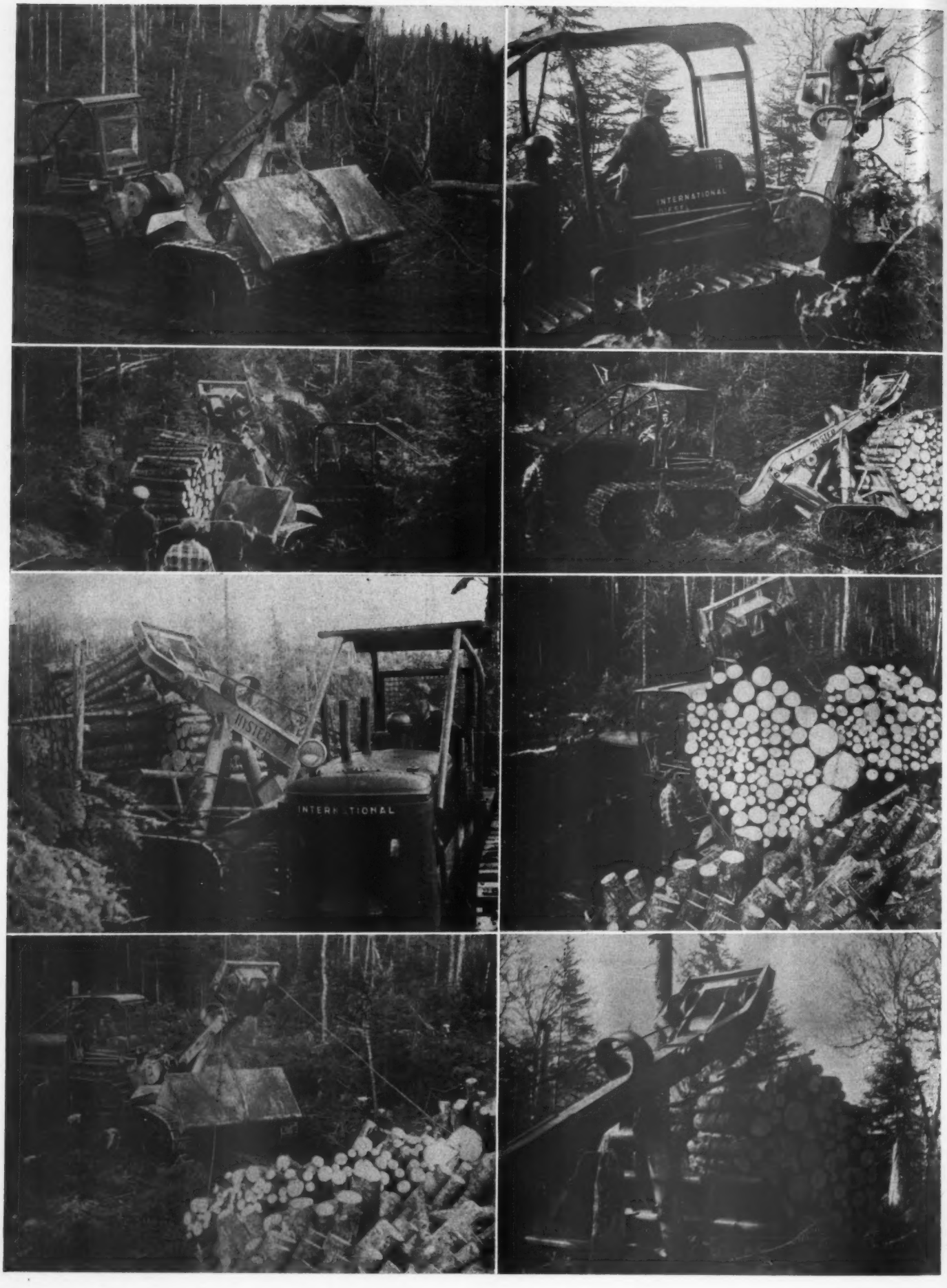
INTERNATIONAL
INTERNATIONAL

ON OPPOSITE PAGE ARE SERIES OF PHOTOS taken by PULP & PAPER editor with 36 mm. film near Corner Brook, Newfoundland, showing various steps in hauling of bundled 4 ft. wood to riverside landings.

In these views the loading of one and two bundles with improved Hyster arches equipped with two crab drums are shown. Dumping at landing is shown. International TD 18 tractor shown in these pictures has done outstanding job. Article tells plans to haul four bundles at a time; making tremendous savings in time and labor.

as far as Honolulu. They have 20 smaller D4 and D2 Caterpillars for hauling and other jobs.

This past year, Bowater's cut 500,000 cords which is being hauled three ways—about 160,000 cords by Hyster arches and tractors; 160,000 cords by sled and tractors and 180,000 by horses and small tractors. Bowater's has sold 600 horses during the past summer. It still has 200 of its own.

Other Mechanical Equipment

Outstanding as examples of how far Bowater's of Newfoundland has progressed along the trail of mechanization is their acquisition of no less than 17 mammoth Lorain cranes manufactured by the Thew Shovel Co., of Lorain, Ohio, and the half dozen varied uses they make of these monster laborsavers in handling wood at various points on the big island. One of these operations is shown in pictures with this article; other views show the Hysters and tractors in action, all taken by **PULP & PAPER** in Newfoundland. Bowater's is one of the biggest users of Lorains anywhere in the forest industries of the world.

A fleet of eight big trucks, supplied by Hayes Mfg. Co. and Pacific Truck & Trailer Co. (now Hayes-Lawrence Co.) Vancouver, B. C., and each one transporting 20 cords of wood (50 tons) per trip, is another important division of Bowater's mechanization.

These are just some of the outstanding examples of equipment which would seem to confound those who spread the dogma that northeastern logging areas of this continent are unsuited for these new methods. Nowhere else in that vast area, has any other company gone as far as Bowater's in this regard, except possibly the Anglo-Canadian Pulp & Paper Mills "40% More Wood Per Man" operations at Forestville, Que., which were first reported in this PULPWOOD section in the June, 1948 issue.

Cutting Rights to 25% of Island

Before going into more detail about mechanization in Newfoundland, let us first take a look at the scope of Bowater's operations and the men who head them up.

Bowater's Newfoundland Pulp & Paper Mills have ownership or cutting rights to timber on about 11,000 sq. mi. of the island. This is more than 25% of its total land area. Ownership is a minor portion and cutting rights are under a 99-year agreement (the mill started up in 1924). Approximately 2,500 sq. miles are freehold. The two big pulp and paper mills on the island and the government are working smoothly together for fire protection in the woods and advancement of good forestry practice.

The government, Bowater's and the Anglo-Newfoundland Development Co. (owned by the London Daily Mail) many years ago formed the Newfoundland Forest Protective Association. Fire protection has been their principal concern so far, but they are getting into programs for selective cutting. The paper companies, however, have always controlled their cuttings by limiting amount of wood harvest each year in each o ftheir logging districts. Beautiful 25-year old stands of balsam fir and spruce looked healthy and thick and reached goodly height already in the vicinity of the Corner Brook mill. The mill uses 60% balsam fir and 40% spruce and figures on a reproduction cycle of 80 years for the new growth to reach merchantable size.

Trees in Newfoundland and in the Maritime Provinces and eastern Quebec in the logging areas visited by **PULP & PAPER** were uniformly small and short in stature compared to other areas. They probably average about 40 ft. in height and about 6 inches in diameter and lots of mixed stands were seen. But there was a scattering of white pine as big as 30 inches diameter, white birch, a foot in diameter, and of juniper (called tamarack or larch in other countries) but these were cut mainly for sawlogs.

The Bowater's mill, now with six machines on newsprint, and an export market for some of its sulfite pulp and groundwood, has started to consume pulpwood at the rate of 480,000 cords a year. An additional 40,000 cords cut in 1947 were shipped to Britain in 1948 (reduced from normal export of 100,000 cords because of lack of exchange in Britain for the present). This wood is cut in five districts shown on a map of Newfoundland published with this article. The program for cutting in 1949 will be the same as it was in 1948, but no wood is being cut for export to Britain.

How Wood Is Brought to Mill

Wood is brought to Corner Brook by various means and the routes are shown on a map. On the narrow-gauge railway which winds all over the island, virtually, 125,000 cords were delivered this past year. Some came by rail from the region around Gander, busy international airport across on the east side of the island, and some from southwest of Corner Brook toward the railhead at Port Aux Basques. About 20,000 cords came 140 miles; 75,000 cords were railed an average of 40 miles.

A total of 70,000 cords were transported by truck 14 miles, dumped in the Humber River and then driven downriver to the mill. Here's where the big Western trucks, with Hercules Diesel 212 hp. motors, got in their licks carrying 50-ton payloads. Trucks picked the wood up at the bottom of White Bay, carried it 9 miles over a 900-ft. elevation, then down 600 ft. in 5 more miles to the Humber.

A total of 90,000 cords was driven direct to the mill down small branches of the Humber River, which empties into the Bay of the Islands, two miles from the mill.

Ocean-going steamers plying around the coast-line of Newfoundland brought in 105,000 cords and the balance of the annual production—60,000 cords—was also brought by ocean routes, but in ordinary towing booms hauled by tugs. The steamers include two "lakers" chartered and also various English and Scandinavian ships which make calls around the coast and, after delivering wood, take out Bowater's paper.

BOWATER'S WOODLANDS officials (left to right): HARRY MILLER, Asst Woodlands Mgr.; RALPH TULK, one of District Managers, who drove Pulp & Paper editor to see logging, and CLAYTON LOUGHLIN, Woods Personnel Supervisor.

Bowater's have four steel towboats built by Vickers-Armstrong. As we have indicated, there are thousands of lakes and ponds on Newfoundland, many strategically located for wood movement. On Grand Lake, the biggest of them, wood will be towed 55 miles, its full length.

Top Executives and Personnel

About 4,000 were on the payroll of the Woodlands Department of Bowater's at the heighth of the operations this fall and winter. In all of five districts there are about 100 foremen and 50 scalers. About 120 are employed in all of the offices—in Corner Brook headquarters there are about a dozen and others in district offices.

The fast-advancing mechanization of operations was begun under Woodlands Manager A. W. Bentley, who retired in mid-1948, and is being carried to completion under Albert Martin, his successor. Mr. Martin is 48, a native of St. Johns, Nfd., and has been with Bowater's for 27 years. Already a grandfather, he has a son at school in Toronto.

Harry Miller, silver-haired assistant woods manager, was born in Helena, Mont., but raised in Nova Scotia. He went to Newfoundland with John Hinman, now the president of International Paper Co., in 1926, and has been in the Newfoundland woods ever since. Before that he was with another I.P. subsidiary, Champlain Realty Co., logging in New Hampshire.

Cyril Parsons, who is in charge of all surveys for Bowater's, is a native Newfoundlander. He has been with the woods department since he started in the woods in 1924. Another top official is J. D. Roberts, who is superintendent of coastal operations.

The five district superintendents are: George Vardy of No. 1; P. G. Tipping, of No. 2 and 3, now combined; Ralph Tulk, of No. 4; Jack Bulley of No. 5, and Dick

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DIESEL ENGINES
POWER UNITS

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INDUSTRIAL POWER

MORE PHOTOS taken by PULP & PAPER with 36 millimeter film on editorial expedition to Newfoundland. Top two views show new D7 Caterpillars, highly praised by Bowater's loggers for their versatility in both hauling bundled wood and road building. See article. Next two views show a road sign and comfortable portable housing for crews. Below is stream used in driving; also the crew at camp 26 with GUS COLBOURNE, Foreman (standing).

Ludlow of No. 6. All are Newfoundlanders, except Mr. Tipping, who came from Ontario.

Ralph Tulk drove **PULP & PAPER'S** editor out to see his operations in a pick-up truck. Mr. Tulk, stocky-built, jovial, but serious and alert when talking of new things doing in the woods, has logged for 24 years for Bowater's and before that for the government and lumber companies. Third party on this tour was Clayton Loughlin, woods personnel supervisor for all districts and nine years with Bowater's.

In the discussion of personnel, one man especially has had an important role in mechanization. He is John Hemmingsen. a young man who hails from British Columbia, where he was associated for years with his father in logging operations on Vancouver Island. His father has retired and sold that business and John is now in Newfoundland as a specialist—supervising mechanical logging developments for Bowater's, adopting the methods he knew in the west, or modifying them to meet Newfoundland conditions. He has been there since '47.

Only one graduate forester is at present included in the top executives. Many students are employed in the summer and will no doubt enter the organization after graduation.

Newfoundland woodsmen are organized in four local unions. Base pay is $6.80 per day in the woods. The employes pay half the cost of their board—80 cents a day, the other half being paid by the company. There have been no strikes since the unions started in 1938. The unions hold an annual wage meeting with the company in the spring.

Power Saws Not in Use

Power saws have not, as yet, been found practical by the Bowater's woods department. They have experimented with a light endless-chain type. D. T. Terrill 42-inch one-man saws, made in Bangor, Maine, and Sandvik buck saws, made in Canada; are used for bucking and logging.

How the Big Lorains are Used

The diverse uses of Lorains are interesting. A Lorain 75 and a Lorain 77 have been used at the Hampden, Nfd. operations, one loading on trucks, and the other unloading from trucks at the Humber river. These are the Hayes trucks with 50-ton loads in cordwood.

Three Lorain 41 cranes are used taking away bark and lifting it to the shore at the floating custom built drum barkers on scows, which are stationed in salt water on the east coast. This is export wood for England. There are regulations against dumping bark in the water.

Two Lorain 75's were being used loading wood onto railroad cars, one at west end of the railroad and the other in the Gander area in the east.

Two big Lorain No. 80's have been used to load ships. They are on scows and are shifted around wherever needed, picking an entire cord of wood from the water with a new type of grab bucket, which opens 14 ft. and has four claws. It picks up an entire cord from the water with one

17 LORAINS HELP HALVE BOWATER'S LOGGING SEASON...

Shrinking their logging season from 10 months to 5 months is the record achieved by mechanization at the 1000 tons-a-day Bowater's Pulp & Paper Mills, Newfoundland. Prominent among Bowater's modern methods are 17 Lorains—doing the jobs shown at the right—on which they help get 450,000 cords delivered to the mill the same year it's cut, eliminate a big carry-over cost; cut labor bills, as well as food, camp and upkeep expenses.

Your pulpwood operations can also benefit from the use of Lorains. Get the facts today from your nearest Thew-Lorain distributor—on other users, their savings and the variety of Lorain sizes and mountings to fit every job.

THE THEW SHOVEL CO., LORAIN, OHIO

Bowater's Lorains at work...

• One Lorain loads 50 tons of pulpwood per truck; a second Lorain is used for unloading at the Humber River.

• 3 Lorains lift bark from the water to shore after its removal by scow-mounted drum barkers.

• 2 Lorains load pulpwood onto railroad cars.

• 2 Lorains on scows, load ships, scooping up a cord of wood at a time from the water with a new type grab bucket.

• Another Lorain is used for road-building. Various other Lorains are on duty around the mill, on boat barges, handling coal, doing construction and maintenance.

• On the docks at Corner Brook, Newfoundland, 3 Lorains unload 3,100 cords of hold-stowed wood from ships to millpond at the rate of 135 cords an hour. (See photo)

THEW Lorain

motion. It is custom built by Wellman Engineering Co. of Cleveland, O.

The pictures with this article show three Lorain 80's on a dock at Corner Brook unloading wood from the ship Avis Glen and dumping it into the mill pond. They unloaded 3,100 cords of stowed wood from the holds of that ship, picking up ½ of a cord with each lift. When observed, all three cranes, with arms 50 to 70 feet long, were taking out and dumping as much as 135 cords in an hour! These big Lorains weigh about 40 tons each and they are powered with different types of engines. Ones pictured had Caterpillar D-13,000 type engines of 185 hp.

A Lorain 41 was used in road work and various others were in use around the mill on boat cargoes, handling coal, construction work, etc,

Stairs Son & Morrow Co., of Halifax, Nova Scotia, were agents for Thew Shovel Co. in supplying the Lorains in Newfoundland.

For car wood at the mill boom and at Deer Lake, where wood is unloaded into a canal, a Butler and a Bucyrus steam crane were in use.

The Story of the Hyster Arches

The first use of the Hyster arches for handling bundled wood began in 1947. Previously they had only been used to haul long logs. Only 3 Hyster arches were used experimentally in 1947 on the bundled wood, but last year, with 28 in use, the experimental stage definitely had become history. The '47 Hysters were smaller, with only one cable and no protecting tailboard. Each hauled only one bundle. They handled about 726 cords in one month. The first experimental tail boards were made at Corner Brook out of 2-inch pipe.

In one camp, they were going to bring out just 1,500 cords with Hyster arches this past year, but they did this so speedily that they kept on going and brought in all the 4,000 cords cut and bundled, well ahead of the snows.

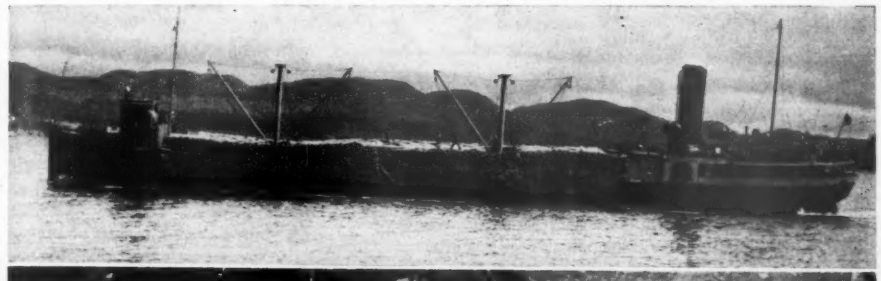
Grades where these tractors and arches are used average 8 to 10 degrees. There are few long grades, but many short and steep ones up to 50 to 60 degrees, and here they must winch the wood down to the road. The highest mountain in Newfoundland, incidentally, is 2,600 ft. and there are no logging areas over 2,000 ft.

VIEWS OF BOWATER'S OPERATIONS in Newfoundland:

Top: Laker en route to Corner Brook with about 1,500 cords from around Newfoundland coast.

Middle: Thew Shovel Co. (Lorain, Ohio) grab unloading loose wood from hold of ship.

Below: One of eight big Hayes-Lawrence trucks (Vancouver, B. C.) which transport 20 cords or 50 tons of wood per trip in the Newfoundland operations from Hampden to Humber River.



Coffing Hoists Will Improve Hauling

As we pointed out, the new bigger Hyster arches—each weighing 7 tons—will pick up two bundles at once and transport 4 at a time, with the aid of the 100 new Coffing Hoists. The new Hyster has one winch on the tractor and there are three fair-leads on the arch.

The new development will make use of a second auxiliary winch—but to date Bowaters uses only one winch on tractor. There are two hand winches on the Hyster. The protecting apron has been found a big help. The Coffing Hoist or tightener appliance should prevent the breaking up and loss of bundles, as sometimes happens now (though we never saw it happen). It is a geared tightener, which attaches to the cable with a chain. A "dog" part of the sling equipment holds it tight. The Coffing Hoist weighs about 30 lbs. and is removed after each use and moved to another brow or bundle. In rough country or soft ground bundles have been winch hauled as far as 900 ft. down hill by use of hold-back line (haulbacks) to the arch. With the Coffing Hoist in use, there will be even less danger of break-up when this is done.

The newly developed Coffing lock sling is part chain and part wire rope. The chain end is passed through a chain recessed sheave and as the weight of the bundle is taken, this sheave acts the same as the open hook does, only, in this case, all slack pulled through the sheave is automatically dogged or locked. After the bundle has been picked up, it becomes a tight package which cannot fall apart until released.

F. W. Coffing, president of the Danville, Ill., company was a visitor in Newfoundland.

The present arch sling to contain the bundles is of ¾-in. wire rope with open choker hooks. The hooks are the same as used on the Pacific Coast before advent of the Bardon hook.

A Visit to Camp No. 26

Where we saw the Hysters operating with both International and Caterpillar tractors was 12 miles southwest of

Corner Brook, in a country of knolls and bog. This was camp No. 26, with Gus Colbourne, a wiry, ruddy-faced native of Twillingate on Newfoundland's Notre Dame Bay, as the foreman.

We saw two D7 Caterpillars. Each had both a blade ahead, to clear the road, and a Hyster arch behind, moving wood to landing.

"Best machine made for the woods," was Gus's opinion of them. The Cats were also used roadbuilding and he had in mind their versatility. One of these Cat D7's hauled 3,400 cords of bundled wood to landing in three months and five days. The same one also bulled roads for 5,000 cords in the same period. The D7 weighs 15 tons.

The big International TD-18 was praised by Gus for its ruggedness and its usefulness in operation with the Hysters. In this work the Internationals have been outstanding, he said.

The hauls to landings, he said, averaged about 3,000 ft. and the longest were about 4,500 ft. As stated previously, we saw the tractors and Hysters picking up and delivering two brows of about 1¼ cords each and dumping them in a pile at the landing. Only four men were required in the crew for hauling—two strappers, a driver and a spotter, or landing man. Up to 25 or 30 trips a day could be made. On each road, one man had fallen and bucked his wood and piled his brows.

At the landing the river was dammed up. It used to be, after letting the water go, that the wood was rolled into the river by hand, but now a tractor bulls the pile into the stream. Men with spurred pick poles are stationed along the river 400 or 500 ft. apart, to break up any jams.

Savings in Manpower, Time and Food

"Before the Hysters, we used to cut here in summer with a 50-man crew; then in the winter we needed 16 men to handle eight horses and double-sleds, plus 10 other men on other jobs," Gus Colbourne related. "This meant a camp crew of 26 to get 4,000 cords of wood out from Dec. 1 to Apr. 1.

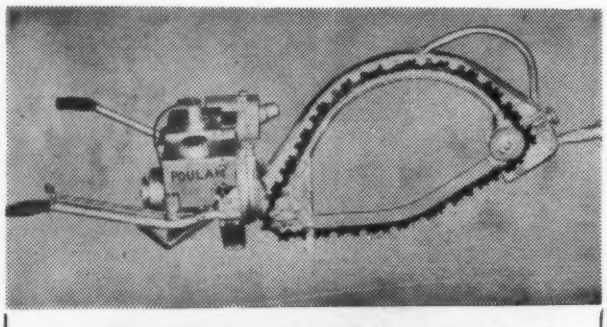
"Now we can haul when the wood is cut. Our cooking house is operated for both the chopper and the hauler simultaneously. We can cut and haul with virtually the same summer and fall crew of about 50 men. The season for delivery of the wood is being cut almost in two.

"This lowers the cost of the wood," Gus continued, "and the cookhouse and camp cost savings are big. The May-to-March season for cutting and hauling can now be reduced to May to October or to December at the latest."

The job had already ben completed in October by this crew.

There is no doubt that 1949 will see a further substantial reduction of the logling season at the Bowater's camps in Newfoundland, thanks to the success of this new venture in mechanization.

CLOSING OF THE ROCKINGHAM, N. C. plant was effected by Sonoco Products Co., Hartsville, S. C., about Feb. 1. The closing is permanent. The plant was old, and operated at a loss for the past few years.



POULAN'S CHAIN SAWS
with
Speed Saw Attachments

By using a Speed Saw Attachment on the Poulan Chain Saw in bucking operation, the log may be in a swinging position or laying flat on the ground and the cut can be completed without the use of a pry pole or wedge. The advantage of these features alone will save approximately one man's salary. Can be purchased with straight blades, sizes 21" to 49". Attachments are made in the 20" and 27" sizes, to be used in felling as well as bucking logs.

Demonstrations Can Be Arranged
Write for Name of Nearest Distributor

POULAN SAW COMPANY
BOX 3524 **SHREVEPORT, LA.**

FRANCIS W. VIGNEAULT, JR., has been named District Representative for tractor equipment in the Northeastern Territory, according to Theron Howard, head of tractor equipment sales in eastern division of Hyster Company of Peoria and Danville, Ill., and Portland, Ore. Since 1940, except for military service, Mr. Vigneault has been with Caterpillar Tractor Co. in factory as well as sales. He is an Illinois Institute of Technology grad in mech. engineering.

Timber Agreement Signed For New B. C. Newsprint Mill

British Columbia came closer to realization of another important pulp and newsprint mill project Jan. 24 when papers were signed at the parliament buildings in Victoria between Minister of Forests E. T. Kenney and President H. J. Mackin of Canadian Western Lumber Co. whereby the government approved a long-term forest management license for the company.

Forests covered in the license are tributary to Duncan Bay, near the mouth of the Campbell River, east coast of Vancouver Island, where the proposed 300-ton mill is to be located.

Engineering surveys have been virtually completed. Crown Zellerbach Corp.'s Central Engineering Division is carrying out the engineering.

Canadian Western has undertaken to supply the mill's pulpwood requirements chiefly with chips from the company's big sawmill on the Fraser River and salvage logs collected over area tributary to Duncan Bay. These sources will be adequate to meet mill needs for 25 years, after which the company will have access to timber now regarded as immature on ground where primary logging has taken place.

Forest Ass'n. Officers

J. V. Perrin of Brown Corp., Quebec, was re-elected president of the Quebec Forest Industries Association at the annual meeting of Montreal. K. O. Roos and R. S. Armitage were chosen vice-presidents, with F. Faure, J. W. Fries, D. A. Gillies, F. A. Harrison, R. G. MacFarlane, J. W. Patterson, H. D. Ruthman and H. A. Sewell as other members of the executive council.

Ad Book for Forest Industries

Stressing forest fire prevention, tree growing and wood utilization, the American Forest Products Industries 11th advertising proof book is off the press and ready for use.

Included in the book are 36 proofs of new advertising mats in 2, 3, and 4-column size. Nineteen ads are on fire prevention, eleven on wood utilization, and six on the advantages of tree farming. Copies may be obtained by writing the American Forest Products Industries, Inc., 1319 18th Street, N.W., Washington 6, D. C.

ADVANCED METHODS IN TEXAS

A Visit to Champion's Woods Operations

CHAMPION'S Woodlands Managers C. Y. TOWNLEY (left), General Manager, and E. J. DOWNEY (right), Assistant Manager, are responsible for forest management of Texas Forest Farms, Inc.

Champion Paper & Fibre Co., with mills in Hamilton, O., Canton, N. C., and Pasadena, Texas, has extensive timber supply sources in various regions of the country, and it has long been a leader among timber-using industries in progressive forestry and wood production methods.

For the Pasadena mill, near Houston, Texas, which is now being greatly expanded as a paper producer, the Champion wood operations are centered at Huntsville, Texas. Huntsville is 71 miles north of Houston. In the last issue of **PULP & PAPER**, a complete illustrated article told how, by 1950, the Pasadena mill will be expanded from a two-machine to a six-machine mill. Four machines are being moved there from the parent mill at Hamilton.

In this article, the woods operation in Texas are described. These woods operations are separated into three divisions, under direction of C. Y. Townley, wood department manager.

Three Divisions Described

About 40% of the mill's pulpwood, or 100,000 cords annually, comes from Texas Forest Farms, Inc., a company subsidiary that functions as a contractor-dealer but operating as a division in getting pulpwood from large timberland owners, company fee lands and sub-contractors. This subsidiary maintains good crew organization, employing as many men as needed to meet the mill's demand for pulpwood. There is quite a labor turnover so the size of woods crews depends upon whether replacements are taken on.

Texas Forest Farms, Inc., was formed under OPA ceiling price (pulpwood) times and took over the organization operated by Mr. Townley as an independent contractor. W. R. Crute, Pasadena mill manager, is company president, and Mr. Townley, general manager. E. J. Downey, assistant manager, actively handles the Texas Forest Farm division. Henry Robertson is office manager.

The balance of the mill's pulpwood (60%) comes from independent contractors, each operating within a specified territory. This activity is under the direction of Calvin F. Ballard, as supervisor of wood procurement.

The third division of the woods department administers the company's forest land, amounting to 128,000 acres as of July 1. Frank R. Crow, Houston divisional forester, actively directs it. He is assisted by P H. Strauss, in charge of land and taxes; Robert McDermid, technical forester; G. W. Locke, forest surveyor; Lud King, conservation forester; I. F. Eldredge, Jr., B. D. Franklin, and D. B. Waller, foresters.

Forest Land Acquisition

Champion is actively engaged in a program of land acquisition the objective of which is to bring their fee ownership up to 300,000 acres. These acquisitions will be spread over a period of time.

Of the forest land, it is estimated that approximately one-half is well stocked. One-fourth has a fair stock, with a definite amount of hardwood but amply seeded or stocked in pine. The remaining one-fourth embraces pure hardwood stands, understocked acreage, and areas that require planting.

In the pine stands, the company policy is to follow improvement practice only. Stands are being cleared of hardwood by sales of these varieties of timber for the manufacture of veneer, lumber and cross-ties. Approximately 12% of the mill's needs in pulpwood is for hardwoods, and one-half of this quota is taken from

Champion Builds Timber Holdings for Future

Champion Paper & Fibre Co. has invested $5,000,000 in timberlands since 1945 in a continuing program to build up timber holdings. It now has 300,000 acres in the vicinity of the Canton, N. C. and Pasadena, Texas, mills plus rights or contracts for considerable other timber. The Hamilton, O., mill will depend largely on Houston for pulp and its products will be higher priced specialties such as its high finish "Kromekote" paper.

This article deals only with the Texas woods operations serving the Champion mill in that state. But for the Canton, N. C., where expansion also has taken place and was reported previously in this magazine, pine logging operations extending down into South Carolina and Georgia are serving that mill at the rate of 1,435 cords a day. Canton makes over 600 tons of paper a day at capacity.

CHAMPION SEED TREE WITH ITS 11-year-old young brood. On Champion's Texas lands there is average reproduction of one cord per acre/year. Some acreage runs 1½ cords per year. Pines are thrifty, come up through brush to re-stock lands; even where impeded reproduce at a half cord per acre/year, struggle for a higher rate.

company's lands; the balance allocated to contractors.

Only a small percentage of the mill's pulpwood supply comes from its own lands.

The bulk of the company's fee ownership lands are in Montgomery, San Jacinto, Liberty, Jasper, Newton, Walker, and Harris counties of Texas, with scattered acreage in adjoining sections.

The company draws pulpwood from as great a distance as 250 miles, with the bulk from within a 100-mile haul radius. Only about 5% or 6% of pulpwood moves to the mill by truck because of difficulties presented in crossing the Houston ship channel by ferry. A tunnel is now under construction and upon its completion it is possible that truck deliveries will be increased up to 10% of the mill's needs. Larger trucks will be used, with hauling up to 30 miles. Some pulpwood has been received by barge.

Fire Protection

All of the company lands are under cooperative fire protection of the Texas Forest Service. The state service, maintaining lookout towers and airplane fire patrol, advises the company of woods fires. The company sends crews to fight fires, whether on their own lands or nearby.

During 1948 the company undertook to intensify its fire control work. The Texas Forest Service was given more backing financially. Company owned fire control units were set up and all personnel trained in fire control technique.

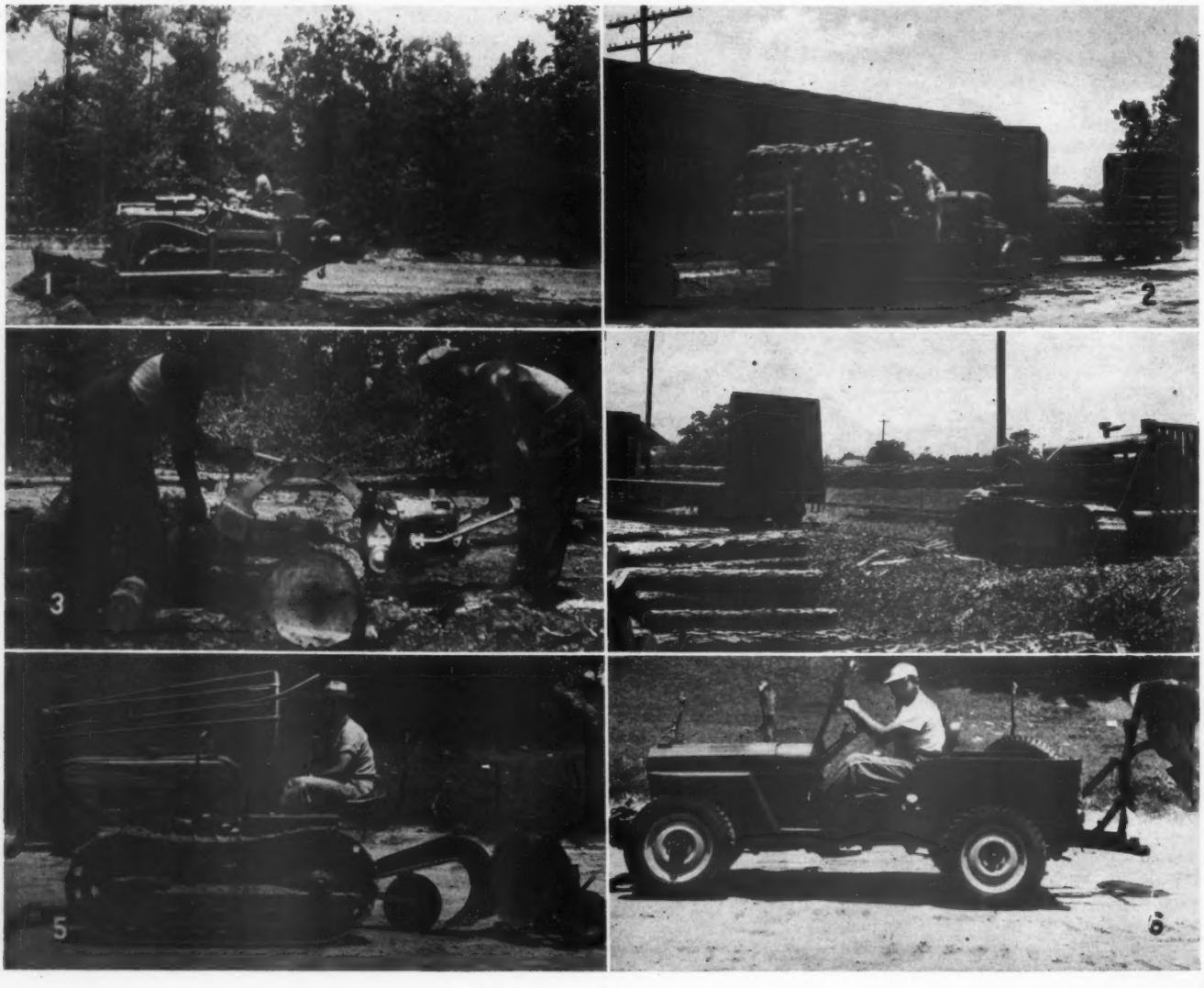
The following equipment was purchased for emergency fire control use:

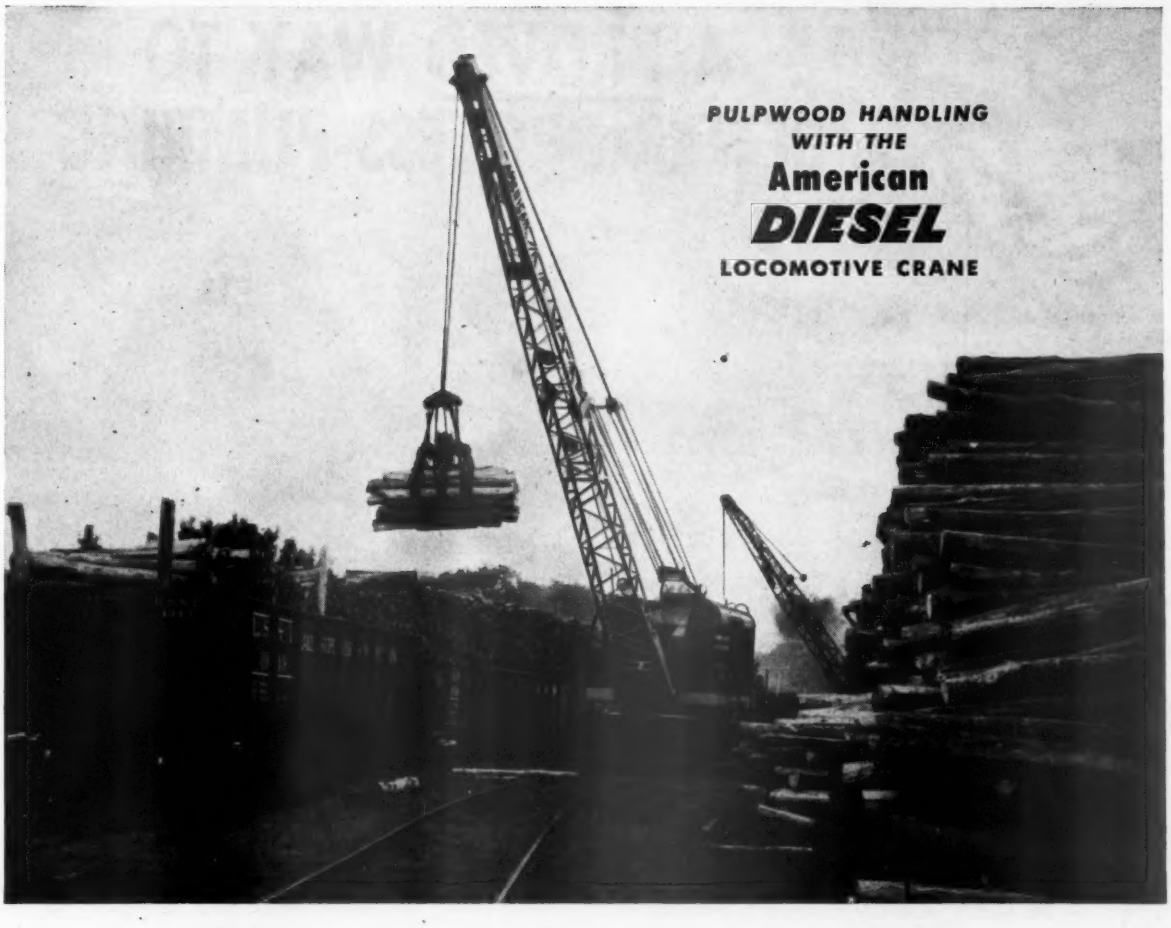
1 Lowther fire plow, with tractor;
1 Jeep, equipped with plow;
1 pumper unit with 200 gallon tank and Panama Pump, mounted on 4-wheel drive Dodge Power Wagon truck;
4 tool caches, each sufficient to equip 15 men, located at Huntsville, Conroe, New Caney and Evadale;
3 pickup tool catches, each sufficient to equip 5 men, to go on pickup trucks during fire season;
6 automobile outfits, each sufficient to equip 3 men, to go on company cars during fire season;
2 reserve caches, each sufficient to equip 30-45 men, located at Huntsville and Evadale.

Arrangements have been made with all Champion pulpwood contractors (dealers) to provide labor in case of fire. Each contractor will have a supply of hand tools for fire suppression.

During the past two years ten miles of roads were built to reach timber previously inaccessible in winter months, and for fire suppression. The present program is for road maintenance, but access roads for cutting on company lands will be laid

VIEWS IN CHAMPION'S TEXAS WOOD OPERATION: 1—International TD-6 tractor with Bucyrus Erie bulldozer used to level off site for pulpwood yard location. Champion folks like this as they can drop bulldozer and use attached winch for skidding when needed. 2—Loading out a box car direct from pulpwood truck at Dodge, Texas, Champion's up-state forest service point. 3—Chain saw is favored for bucking. Here new Poulan chain saw with Homelite motor has been augmented with oil cup. In measuring pulpwood lengths (5 ft) Champion puts a metal cap on end of piece to preserve it from inadvertent axe trimming. 4—An Oliver "Cletrac" equipped with special heavy bumper by Champion does heavy service at reserve pulpwood yard; is equipped with winch for normal procedure but if truck gets bogged heavy grill makes it possible to just push loaded vehicle out of mud hole. 5—Oliver HG-42 Cletrac outfitted frame to protect driver from brush and a fire line plow. Control of fire is essential in real forestry progam such as Champion's which operates in uneven growth stands and 40% cutting is to open up for release growth or seeding. 6—Willys Jeep with fire plow attachment.





No work-no eat!

If your pulpwood handling is now at the mercy of an old style steam crane, you'll find that the machine is doing a lot of eating when it should be working.

It's running in frequently for fuel and water. It's in the shop for a boiler washout. It's burning up coal early in the day, and perhaps all night, without moving a stick of wood. It eats up all the wages of a fireman, who does nothing but nurse the boiler.

Now—compare that with a new AMERICAN DIESEL, of the type shown here, in the yard of Consolidated Water Power & Paper Co. As to speed, smoothness and general efficiency, it outperforms the old steam cranes sensationally. It needs only one man. Its fuel cost is about one-tenth that of a steamer. When it stops work, all costs stop. It works tirelessly, week in, week out, without major servicing.

If the idea of "no work, no eat" appeals to you, why not let us give you some specific figures on the low operating costs of the AMERICAN DIESEL. As the first step, mail coupon below for new, illustrated catalog.

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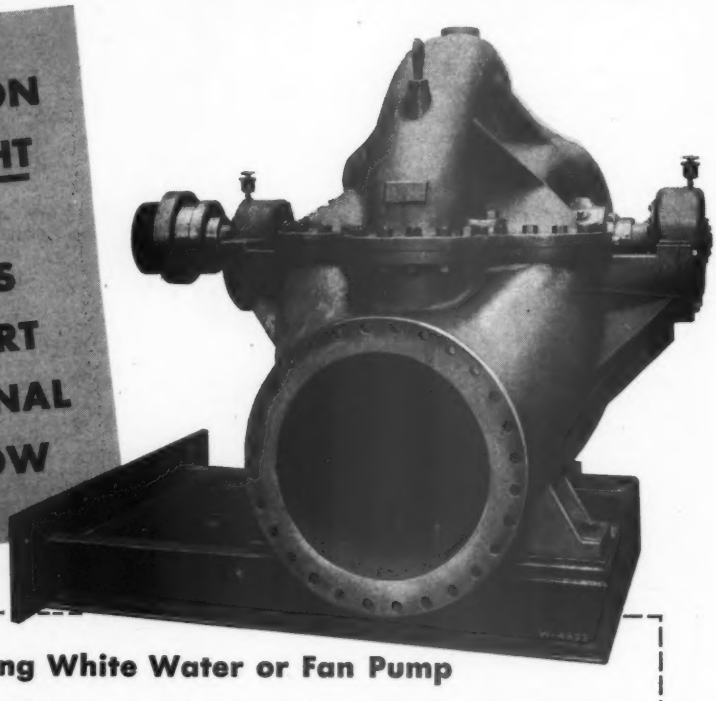

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The Type LA is just one of Worthington's comprehensive range of paper-processing pumps—each built to give you peak efficiency and economy in the work for which it was designed. And for best results in *every* application, Worthington draws on the biggest stockpile of practical knowledge in the business—built up through more than 100 years of experience. For further proof that *there's more worth in Worthington*, call our nearest District Office. Or write to *Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.*

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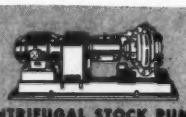
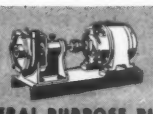
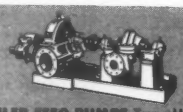


CENTRIFUGAL STOCK PUMPS Type FP. Handle all kinds of stock up to 7% consistency. 4 sizes. Capacities up to 6000 GPM; heads up to 200 ft.; speeds up to 1750 RPM.



GENERAL PURPOSE PUMPS Type CF. Open impeller. Single stage. Sizes 1" to 4". Capacities up to 1000 GPM; heads up to 130 ft.; speeds up to 2475 RPM.



BOILER FEED PUMPS Type UB-2. 7 sizes. Capacities up to 1500 GPM; heads up to 1000 ft.; speeds up to 3600 RPM.

down two years in advance for actual harvesting. The road program will be integrated with the timber management program.

Equipment for Road Work and Hauling

The road work involves the use of bull dozer, bull grader, drag line, dump trucks. This equipment is also used to establish and maintain fire breaks, etc. It includes one Allis Chalmers HD-7 tractor, one International Harvester TD-9 tractor, two International Harvester TD-6 tractors. The company also has three Oliver Cletrac Model B tractors used for skidding in the woods, and a fourth unit for pulling the fire line plow. These tractors are also used in maintaining railroad sidings and wood yards.

Trucks for hauling pulpwood include Chevrolets, Fords, Dodge and International in order named.

The company's planting program was launched in 1946 and up to the 1948-9 season, 1906 acres have been set in pine plantations. Slash pine has been set out exclusively, the seedlings coming from the Texas Forest Service nursery at Alto, Texas. During 1947-8 the company's plantings amounted to 1,500,000 seedlings. In addition, the company distributed 500,000 seedlings free to 92 cooperating groups in 10 East Texas counties. Planting on the Miller-Vidor tract near Evadale in 1948-9 will permit the use of a Lowther seedling planter, which will make possible stepping up to 2,000,000 seedlings. Much plantation work has been in places where stumps required hand planting.

The company has 10 independent pulpwood contractors (dealers). It also has a wood contract with the Southwestern Settlement & Development Corp., and these sources, with Texas Forest Farms, Inc., suffice. The farmers provide a good amount of wood during the summer months.

The Santa Fe Railroad is building 33 additional pulpwood rack cars for Champion's use.

Small mills, dense population, and small ownerships are making pulpwood scarce north of Shelby, Nacogdoches and Cherokee counties. Champion is not affected.

Champion Contractors Organized

Champion contractors have formed the Independent Pulpwood Producers, Inc., a non-profit organization in which mutual cooperation has proven efficacious in harmony and promotion of good methods. Company men attend meetings.

In selecting cutting, all marking of trees to be felled is done by Champion foresters. Felling is done principally with hand saws and bucking by power saws. Trucks are loaded by hand, and transfer to railroad cars also involves hand stacking.

The company has gone extensively into the matter of forest waste utilization. Every effort has been made to produce pulpwood from tree tops following logging, with results that have been termed satisfactory. At the time of **PULP & PAPER'S** visit as much as from 10% to 15% of the mill's wood supply had come from that source. It is anticipated that this source will be increased rather than lessened.

Another tentative source of pulpwood supply from waste has been the cut-off lengths from peeled poles that have been cut to specified lengths in creosoting plants. This source has provided as much as 70 cords in a month. Random length cross tie cut-offs have been tried and while this can run to four railroad cars per month, or 40 to 50 cords per month, experience has been that stacking is difficult and minimum car loading stipulations results in greater transportation costs. Lumber cut-offs involve the same problem.

In testing out lumber industry waste, such as shavings, it has been found that airdried stock is usable but that if the lumber has been kiln dried (planer mill shavings) the fiber is too short and is brittle. Shavings from pole sizer machines has to be re-chipped, which requires equipment for this purpose at the mill. Sawmill slabs and edgings have been found uneconomical as 6.96 cords of slabs only yielded 3.91 cords after being peeled of bark. Handling of so-called wood waste requires special facilities at the pulp mill yard.

The Champion mill has many friends in the Texas lumber industry and is assured of full cooperation in its efforts to develop a method of economical use of forest products waste as develped by present methods of production.

Industrial Relations Policy Of the Champion Mills

Champion Paper & Fibre Co. employes are not organized by a national union and according to company data, the take-home pay of its employes averages about 10% above that of comparable unionized mills. Unions have lost several attempts to break down the company's industrial relations policies, which Champion management describes as a "cooperative policy" stabilizing future outlook for some 7,000 employes.

The company is still family-controlled as it has been since it was founded in 1894 by Peter G. Thomson, Cincinnati bookseller, and continues now under his son-in-law, Reuben B. Robertson. As the family expands, it has become a custom to take only one member of each branch into the management.

Southern Association
REVIEWS PAST GAINS

E. J. GAYNER, III, Vice President and Manager of Brunswick Pulp and Paper Co., Brunswick, Ga., is newly elected President of the Southern Pulpwood Conservation Association.

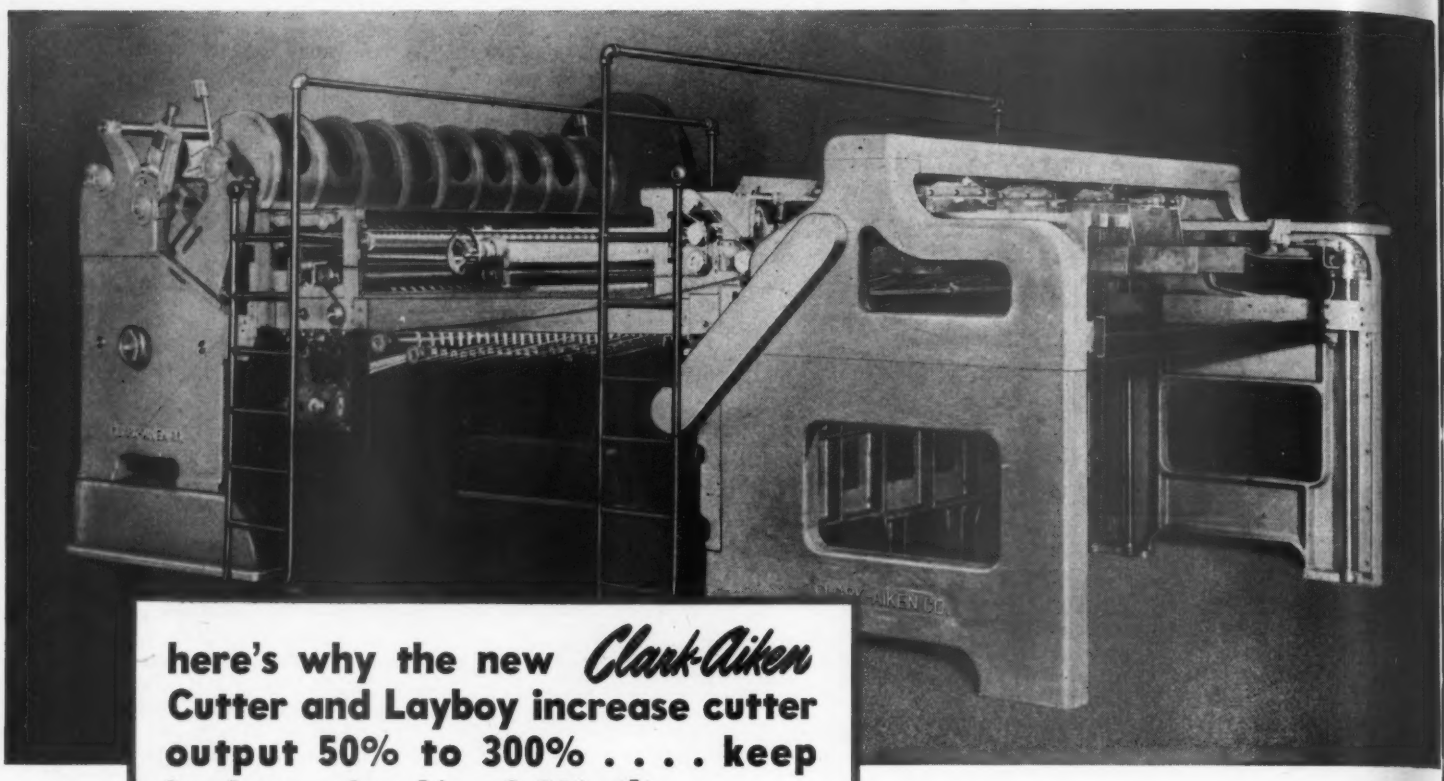
One of the best Southern Pulpwood Conservation Association meetings in years—from both program and attendance standpoint—was held in February at Atlanta, Ga. Officers were elected and reports made on progress todate in the association's conservation program.

E. J. Gayner, III, general manager of Brunswick Pulp and Paper Co., Brunswick, Ga., was elected association president; Joe E. McCaffrey, International Paper Co., Georgetown, S. C., was re-elected vice president.

Ray Weston, Hollingsworth and Whitney, out-going president, gave credit to association work as greater than "most of us realize because we are too busy with our own jobs." He also said that "judged from the past" association members had done a wonderful job, but may be short for the future and there is no time for members to pat themselves on the back.

The association was formed in 1937 by top level men in the southern paper industry. As of January 1, 1949, there were 23 consuming members, representing 32 southern mills. Southern Paperboard Corp., Macon Kraft Corp., and Johns-Manville (Natchez, Miss.), had changed from non-consuming to consuming membership. Coosa River Newsprint joined as a non-consuming member.

Under the direction of conservation foresters, numbering 31, but including those doing this work without title, 465 owners were given free technical service on 942,000 acres. These men, assisted by 55 timber markers, spotted nearly 300,000 cords for cutting on 90,000 acres of 1,035 land owners.



here's why the new *Clark-Aiken* Cutter and Layboy increase cutter output 50% to 300% . . . . keep broke under ½ of 1%.*

Clark-Aiken

sustained-accuracy

ROTARY CUTTER

Heavy Cast Frame, heavy tubing girts for rigidity. Insure accuracy, eliminate vibration.

Ball Bearings Throughout for smooth operation and accurate alignment at high speeds.

Length Constantly Maintained. Change-gear rough length adjustment and cone-pulley final adjustment insure accurate sheet length under all conditions.

Self-Sharpening Spiral Knife insures clean, sharp cuts on paper of any thickness.

Ball Bearing Slitters for clean slitting without dust.

Quick, Precision Adjustment of knife and squaring.

Infinite Paper Travel Speed Range — 0 to 700 feet per minute to suit working conditions.

Write for Bulletin 101

Clark-Aiken

sustained-operation

LAYBOY AND DELIVERY

Heavy Rigid Cast Frame, instead of light structural shapes, minimizes vibration and wear, reduces broke.

Ball Bearings Throughout layboy and delivery for smooth operation, accurate alignment at high speeds.

Adjustable Speed Ball-Bearing Joggers. Smooth, free-working. Operated by their own ½ h.p. motor. Speed adjustable to any delivery conditions.

Rapid Pile Table Return — 59 seconds.

Fully-Adjustable Tapes. Variable speed take-off tapes eliminate jerking and tearing. Tape grip and tension adjustable for all conditions. Lower tape speeds adjustable for overlap. Adjustable tape guides. Tape travel speed synchronized with cutter operation.

Adjustable Air Pressure insures flat sheet delivery.

Write for Bulletin 201

THE *Clark-Aiken* COMPANY

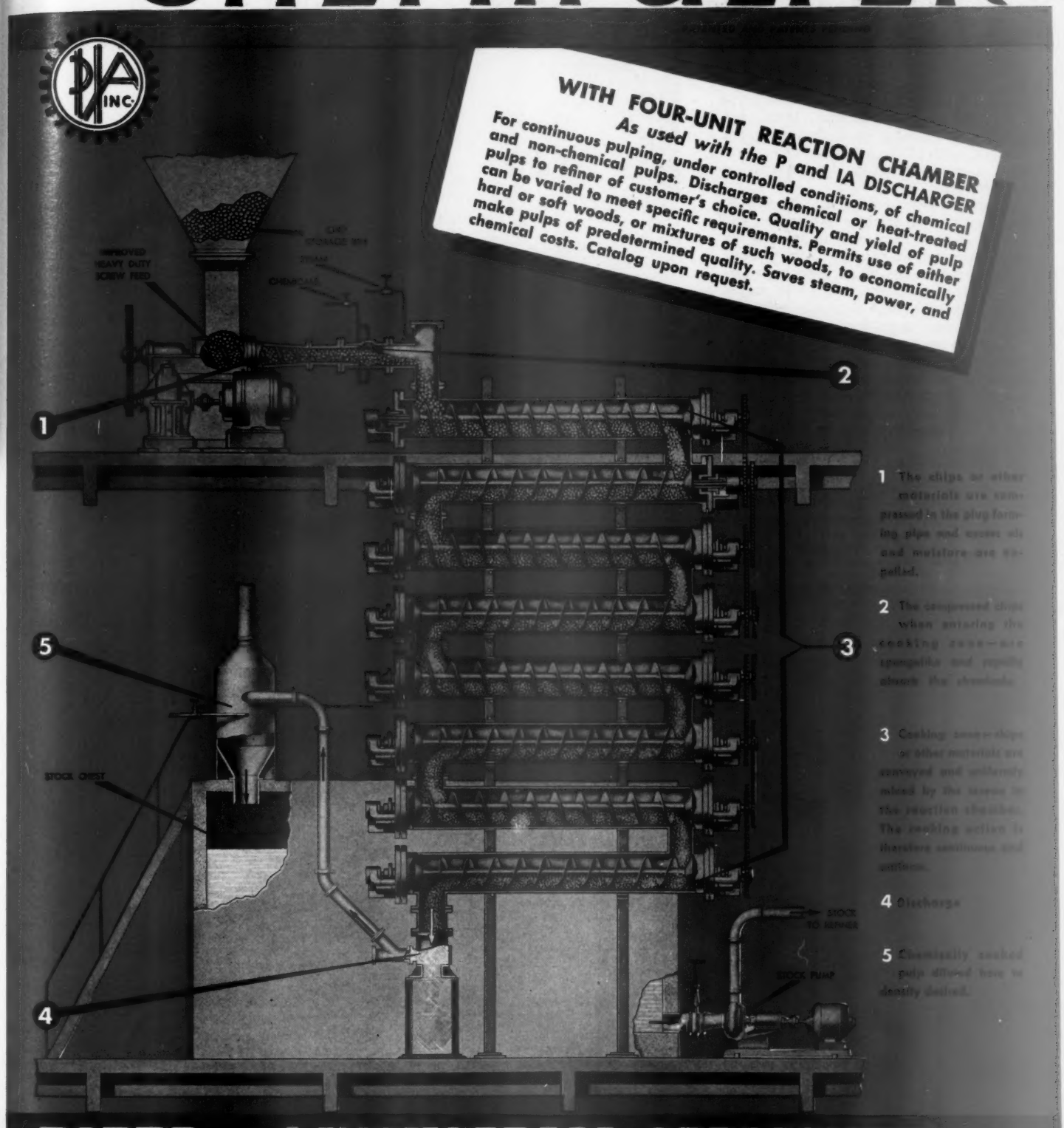
PIONEERING IN PAPER MILL MACHINERY IMPROVEMENT SINCE 1828

Paper Mill Division

LEE, MASSACHUSETTS

* Based on sustained shake-down tests under actual mill conditions.

CHEMIPULPER


PA INC.
WITH FOUR-UNIT REACTION CHAMBER
As used with the P and IA DISCHARGER
For continuous pulping, under controlled conditions, of chemical and non-chemical pulps. Discharges chemical or heat-treated pulps to refiner of customer's choice. Quality and yield of pulp can be varied to meet specific requirements. Permits use of either hard or soft woods, or mixtures of such woods, to economically make pulps of predetermined quality. Saves steam, power, and chemical costs. Catalog upon request.
IMPROVED HEAVY DUTY SCREW FEED
STOCK CHEST
STOCK TO REFINER
STOCK PUMP
1
2
3
4
5

1 The chips or other materials are compressed in the plug forming pipe and excess air and moisture are expelled.

2 The compressed chips when entering the cooking zone—are spongelike and rapidly absorb the chemicals.

3 Cooking: steam—chips or other materials are conveyed and uniformly mixed by the screws in the reaction chamber. The cooking action is therefore continuous and uniform.

4 Discharge

5 Chemically cooked pulp allowed here to drastically drained.

PAPER and INDUSTRIAL APPLIANCES, INC.

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HAWTHORNE CO. MODERNIZES

Equipment Improved; Capacity Added

Beginning in 1941 with a planned program of expansion and modernization, the Hawthorne Paper Co., located on Kings Highway, a brief ten-minute drive from downtown Kalamazoo, Mich., has steadily and surely developed its plant assets in each of the past eight years by a total expenditure slightly in excess of $700,000.

Average daily tonnage in 1940 was 30 tons per day of machine production and in 1947, 35 tons. They make quite a variety of grades and weights so their tonnage varies considerably. When these improvements have been completed, which should be in early 1949, there should be a further slight increase in production.

There is more to the program before it reaches the totally completed state. This additional work was underway this winter when **PULP & PAPER** visited the Hawthorne plant and will probably be culminated in 1949—materials available. This work comes under the heading of major incompletions and will boost the total expenditure by $200,000.

GEORGE H. GERPHEIDE (left), President of Hawthorne Paper Co., and M. H. STETSON (right), Vice President, initiated far-reaching expansion at their plant.

Important and interesting additions, in and being put in, are two new boilers; a Beloit Fourdrinier section for No. 1 machine and a new drive with Westinghouse turbine for No. 2 machine; an additional Bird screen and Bird savealls; a Noble & Wood Victory beater; new water treatment plant. A new drive will be completed for No. 2 machine. There are three new 833-KVA transformers installed by Gregory Electric Co. of Chicago.

Bird Machine Co. supplied Vickery felt conditioners and Vickery doctors on both dryers and calender rolls.

Interesting from the point of view of permitting close control while speeding up production is the installation of a Horton Mfg. Co. variable speed clutch pulley serving a Langston rewinder. This is more fully described later in this article.

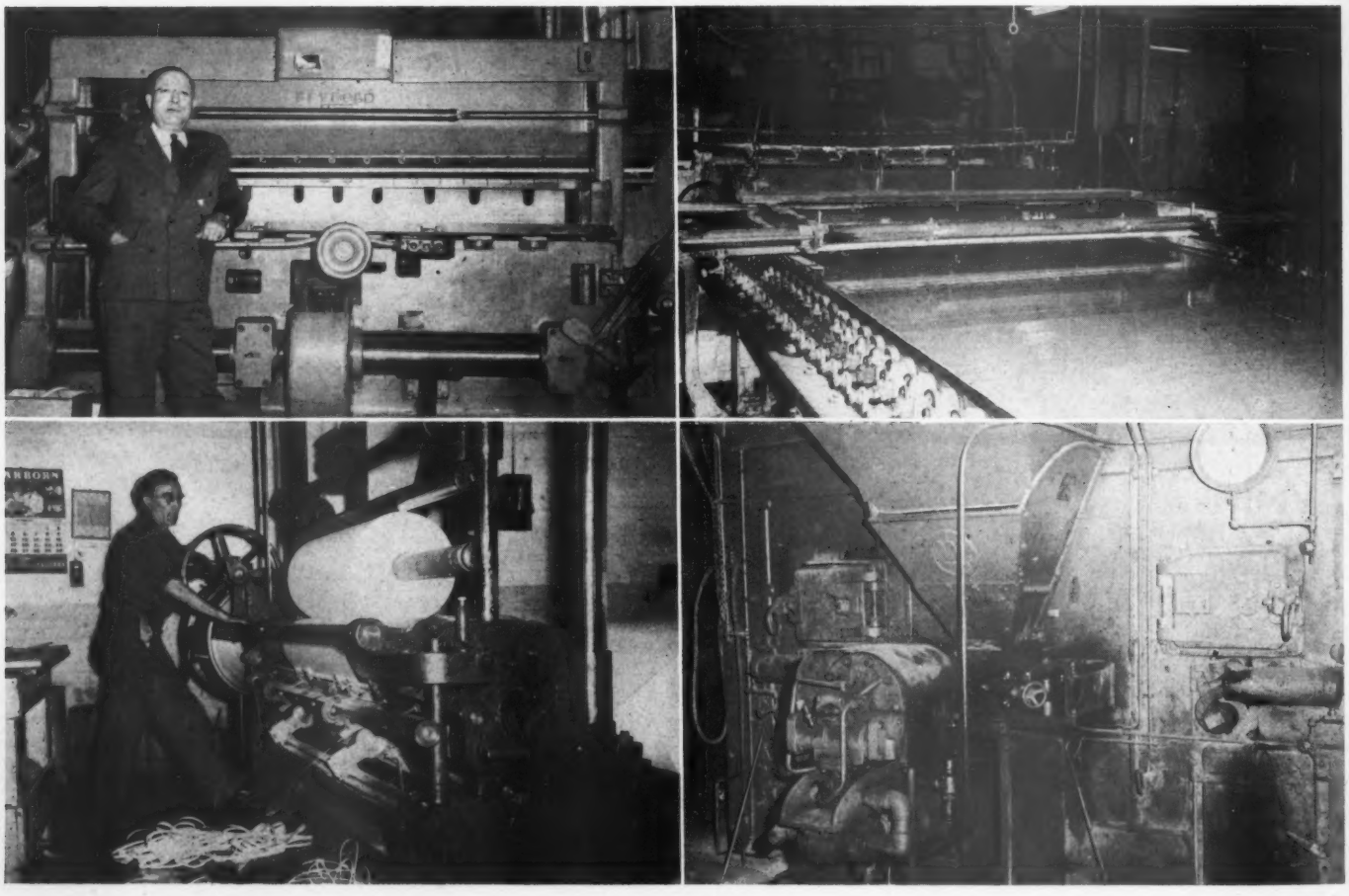
Changes in Four Departments

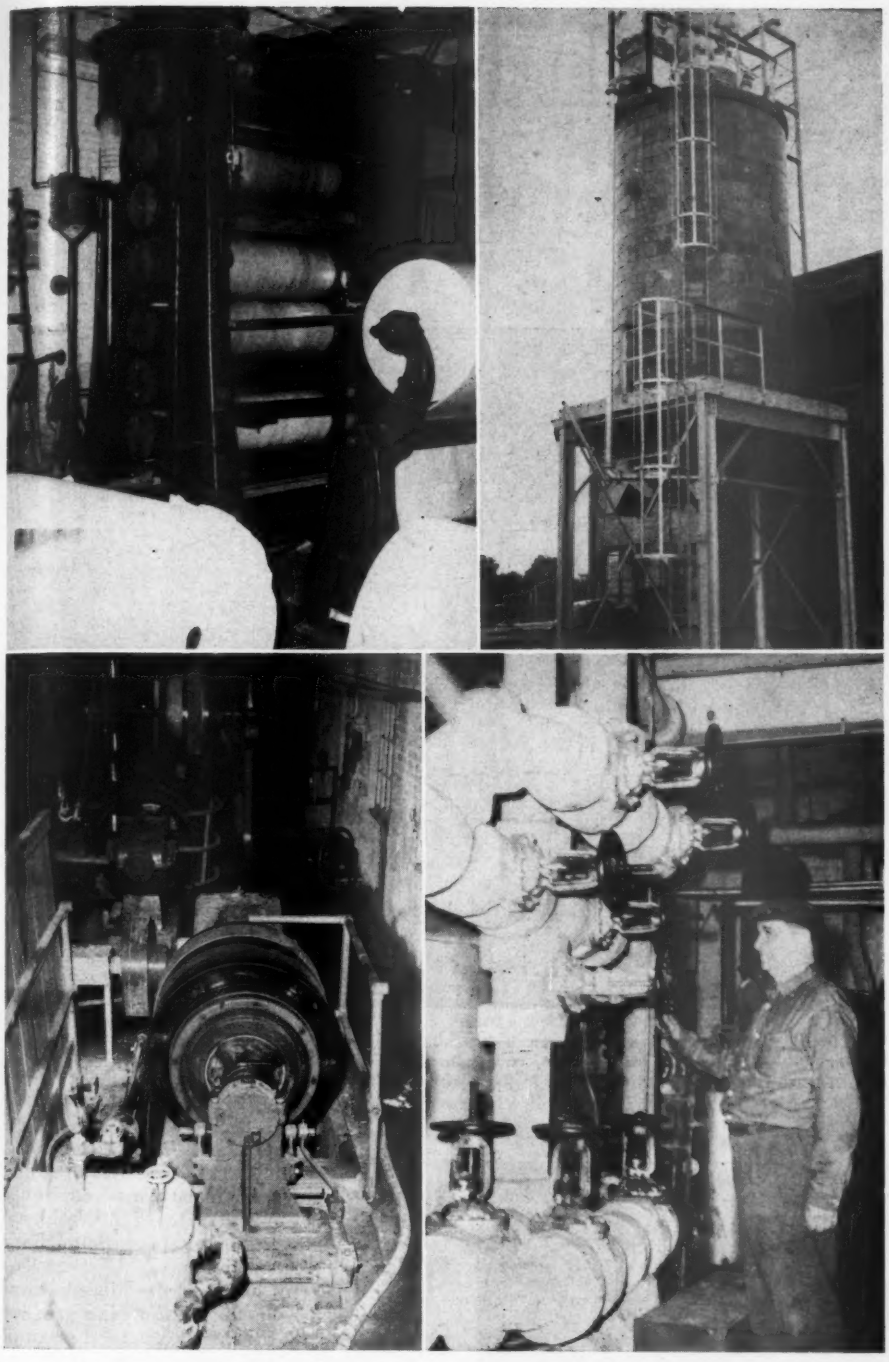
Besides additions to buildings made necessary by the new and the rebuilt units, the changes at Hawthorne are in four main departments. These are power plant, water supply, papermaking equipment and finishing.

Changing and modernizing an existing paper mill requires more planning in many

SCENES AT HAWTHORNE PAPER CO. in Kalamazoo:

Upper left, Fred Hodgmire, Superintendent, explains operation of new Seybold Cutter as PULP & PAPER snaps picture. Upper right, New Beloit Fourdrinier section of No. 1 machine. Bird 3-A screen can be seen in background at right of wires.
Lower left, Lawrence Blumk oerates Langston 72-inch rewinder with new variable speed Horton Mfg. Co. clutch. Lower right, Westinghouse stoker feeds a new Wickes 450-h.p. boiler.





HAWTHORNE PAPER CO. EQUIPMENT includes: Upper left, Eight-roll supercalender rebuilt by Wheeler Roll Co. Upper right, New ash silo, an addition, 350-ton, 20-ft. diameter and 60-ft. high. Lower left, Looking along the backline on No. 1 machine. Spiral gears made by Beloit Iron Works, were installed here. Lower right, William Olcott checks things in the Cochrane boiler feed-water softening plant.

instances than building an entirely new addition. And it takes time. Add to this the difficulties of obtaining materials supply during the war and the post-war periods and you have the reason why the men at Hawthorne had to spread this plant development work over the period of years.

The initiative for the development at Hawthorne stems from George H. Gerpheide, president; M. H. Stetson, vice-president and sales manager; Fred M. Hodgemire, Hawthorne superintendent and Paul Bartholomew, technical director. These men worked closely with key employes throughout each department, and with the engineers of the firms executing the work.

Right at the core of all the work is the new equipment in the boiler plant supplying power for the mill. Three former boilers were taken out and replaced with two new Wickes type A boilers of 450 hp each. These two increased the former capacity by approximately 150 hp. Two older boilers were left in use. These develop capacities of 250 hp each, bringing a total capacity to the Hawthorne plant of 1400 hp.

The two new boilers are each fired by Westinghouse stokers. An adjunct of the new power plant are new coal handling and ash handling units. These include new silos. The coal silo is a 350-ton Jefferson that stands 60 feet high. Coal handling units were supplied by Stephens-Adamson Co.

The water supply is a whole new project in itself. A new building was built for housing the unit. The water treatment plant is all new. Water is drawn from artesian wells, and filters remove the manganese and iron. Hungerford & Terry, of Clayton, N. J., did the work. There is a new Cochrane boiler feed-water preheater and softener for the power plant.

Other additions are on the way. A new Fourdrinier part, 100-inch by 60-foot wires, is in operation on No. 1 machine. Beloit Iron Works supplied this and a new backline including spiral gears for the new set of spiral gear drives for both No. 1 and the 89-inch No. 2 machine. These gears are driven by a new variable-speed turbine, a 210-hp Westinghouse, with speed range: 50-600 fpm.

Added to the Bird screen already in use on No. 1 machine is a new Bird model 3A screen. There are also new Bird savealls, Model 6A, and these savealls will soon go into operation on No. 2 machine, too.

The super-calender has been rebuilt by Wheeler Roll. Co. Two extra rolls were added making this an 8-roll machine. It is alternating cotton and steel roll, the bottom roll is 16-inch diameter and it has a speed range from 50-800 fpm. It operates with Falk 8 HC reducer and Falk FA coupling. The operator panel is Weston Model 741 with Reliance variable-speed drive.

The Langston 72-inch rewinder is driven by a Horton variable speed clutch pulley supplied by Horton Mfg. Co. of Minneapolis, Minn. Reliance drives went onto four of the cutters in use.

In the finishing room is a gleaming new 84-inch Seybold trimmer. There are many other items, including a new Ingersoll-Rand air compressor; a new layboy and new overlapper on No. 1 cutter, a Maxon; and a new Erie overlapper on another cutter. Hawthorne uses Clark lift truck carloader, a high-telescopic forklift with capacity of 3,000 pounds.

Hawthorne is a specialty mill making technical papers, base stock reproduction and rag content papers.

Gair Purchases Dowd

George E. Dyke, president of Robert Gair Co., Inc., New York, has announced the purchase of M. S. Dowd Carton Co., Groton, Conn., a folding carton plant incorporated in 1922. The business will be operated in connection with the Gair folding carton department at the Montville, Conn., mill where paperboard will be produced. Lloyd E. Gallup, former president of Dowd, joins Gair's folding carton sales staff in New England.

CANADA'S 35th MEETING

About 1,200 Attend Sessions

Stewardship of the Canadian Pulp & Paper Association moved far westward at the annual meeting Jan. 26-28 at the Mount Royal Hotel, Montreal, when Harold S. Foley, Powell River Co., Vancouver, B. C., was elected chairman and Paul E. Cooper, Pacific Mills, Vancouver, was made honorary vice chairman.

L. J. Belnap, Consolidated Paper Corp., Montreal, and S. L. Carteret, Canadian International Paper Co., Montreal, were named vice chairman; and another honorary chairman was picked from Montreal: C. R. Whitehead who in recognition of his many years of industry service was also elected honorary member of the Council of CPPA.

The annual meeting of the Technical Section of CPPA was held parallel with the overall gathering. New officers for the Council of the Technical Section are: John Buss, assistant general manager in charge of production, Provincial Paper, Ltd., Toronto; and John Hanna, mill manager, Bathurst Power and Paper, Ltd., Bathurst, N. B.; and Walter W. Holland, general superintendent, Quebec North Shore Paper Company, Baie Comeau, were made new councillors. Continuing on the Council are: E. G. Kirby, Price & Pierce, Montreal; G. A. Franklin, E. B. Eddy Co., Hull, Que.; Dr. J. Edwards, Price Bros. and Co., Kenogami, Que.; and W. C. R. Jones, Howard Smith Paper Mills, Ltd., Beauharnois, Que. Douglas Jones continues as secretary-engineer of the Techincal Section with a unanimous complimentary vote of the membership.

LEADERS OF CPPA talk over program. (Left to right) R. M. FOWLER, President of CPPA; L. J. BELNAP, Chairman of Executive Board, CPPA, and Chairman of Board, Consolidated Paper Corp.; HAROLD S. FOLEY, new Chairman of CPPA, and President of Powell River Co., Ltd.

TECHNICAL SECTION COUNCIL OF CPPA. Left to right, front row, DOUGLAS JONES, JOHN BUSS, F. J. GIFFEN, C. E. TURNER. Standing, B. W. BURGESS, G. A. FRANKLIN, W. C. R. JONES, DR. J. EDWARDS and E. G. KIRBY.

The colorful lobby of the Mount Royal reflected the meeting of Canada's greatest industry with a brightly staged display of the purpose and work of the industry. And around the outside of this large display was an exhibit of oils by famous artists reproduced by silk-screen process and picturing various phases of logging and pulp and paper manufacture and shipment. Facts stressed in the exhibit: the industry is first in Canada in employment, in wages paid, in value of production, in export value, in capital invested—yet it consumes only one-sixth of wood used in Canada.

Figures: The industry's output amounts to 800 million annually, exceeding the annual metallic mineral production by 65%. It accounts for 37% of all exports to the U. S. and 20% of all Canadian exports. It helps directly to provide livelihood for a million Canadians and 328,000 are employed in the industry itself. Production

(Continued on page 95)

Your Choice of Chemicals COUNTS!

In almost every step of paper manufacture from the preparation of pulp to the sizing, filling, and coating of the finished sheet, chemicals are indispensable and must be chosen with exacting care. Paper makers who want to be sure of the quality and uniformity of the alum, salt cake, and other process chemicals they use, specify "General Chemical."

ALUMINUM SULFATE

Standard: Lump; Ground, 99% thru 8 mesh, 95% thru 10 mesh; Powdered, 95% thru 100 mesh.

Iron Free: Lump, approx. 2½"; Ground, thru 8 mesh.
Liquid

SODIUM SULFATE

(Salt Cake) . . . Paper Makers' Grade, thru 8 mesh.

OTHER PRODUCTS OF GENERAL CHEMICAL FOR THE PAPER INDUSTRY

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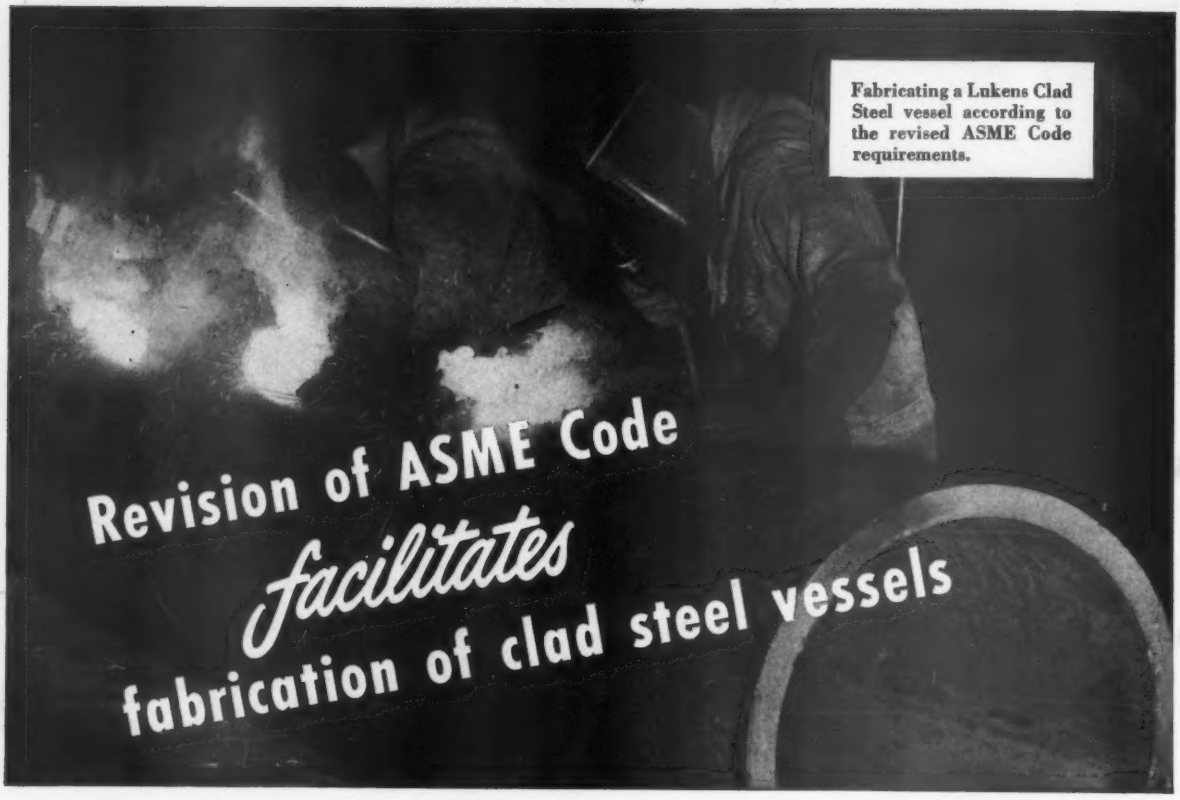

Fabricating a Lukens Clad Steel vessel according to the revised ASME Code requirements.

As announced recently in Mechanical Engineering, Case 896 of the ASME Code has been further revised. Rulings cover welding procedure and operator qualification requirements, with the result that, in many cases, the fabrication of clad steel equipment is facilitated and speeded up.

All-alloy welds can be used throughout the entire section of a clad steel shell where the small diameter, for example, makes this necessary. Materials meeting Specification SA-263, Grade A (Type 410) can be used without stress relief if the carbon content of the cladding is less than 0.08. Temperature limitations for certain types of clad metals have been modified.

Case 1078, covering the use of linings which are applicable to certain fittings—manways, nozzles and the like—is also now available for the first time.

For general information on Lukens Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad Steels, write for Bulletins 255 and 338. Lukens Steel Company, 444 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

LUKENS
Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

• • SPEED SCRAP TO THE MILLS TO MAKE MORE STEEL • •

of newsprint is five times that of any other counrty, and it is second in pulp.

Statistics like these would be enough to call for an annual meeting in any industry, but there were, traditionally, other considerations. The January meeting (this year is the 35th) is the yearly exchange of knowledge by members of the Technical Section.

Ambridge Urges More Research

But if Canada is strong in production it is weak in another important phase of industry—research. That fact was laid out honestly by D. W. Ambridge, president of Abitibi Power and Paper Co., Ltd., in his speech at the Technical luncheon on the 27th.

Said he: The amount of the sales dollar spent for research in the Canadian industry is woefully small as compared with the United States. The average wage of research men in the Canadian industry is $3,800 per year. The total number of research men is small, and one company employs almost one-third of the total. For many years now a large percentage of young brilliant research men have gone into the U. S. to find employment and appreciation in that pulp and paper industry. Mr. Ambridge pointed out that while the industry was a giant, it was also in its infancy with regard to research. It has, in fact, hardly begun, according to Abitibi's chief.

Nevertheless, the overall picture was happy. In his annual report, R. M. Fowler, president of CPPA, said that he could borrow from a speech of President Truman's: "I am pleased to report to the 81st Congress that the state of the Union is good." He singled out the work of the Western Branch and, turning to the opposite coast, said, "It now appears that we will be able during 1949 to welcome Newfoundland into the Canadian federation; the two Newfoundland mills have been associate members of CPPA for many years and I hope that the new ties with Canada will be paralleled by increasingly close participation."

DR. BORJE STEENBERG (left), Forest Products Research Laboratory, Stockholm, Sweden, was a distinguished foreign visitor and spoke on work of Stockholm research and also "Behavior of Paper Under Stress and Strain." D. W. AMBRIDGE (right), President of Abitibi Power & Paper Co., Ltd., gave industry leaders much to think about in his analysis of Canadian pulp and paper reseacrh. His verdict: "not enough, by far."

Pointing out that in 1948 the value of pulp and paper exports to the U. S. was more than 75 millions greater than in 1947, he went on to say that there still remained the problem of establishing a closer balance in trading relations between the two North American countries.

"I believe," he said, "that trade should flow in broader channels in both directions. We should each make those pulp and paper products that are best adapted to our respective skills and resources, without maintaining across the middle of a single economic area a curtain of tariffs and administrative restrictions." As to the future, Mr. Fowler had this to say, after making due reference to world unrest:

"We are no rootless industry drawing a fickle inspiration from changing fashions. This industry stands broad-based upon the needs and culture of all mankind. We have, in a word, an assured and certain future which can only be spoiled if we spoil it ourselves."

The health of the Canadian industry was reflected by the attendance, roughly 800 for the Technical Section and about 1200 for the overall attendance, with many coming from great distances in the states and from British Columbia as well.

The 1949 awards went to E. T. Buchanan, Consolidated Paper, who won the Weldon Medal for the outstanding paper delivered before the Technical group; to J. B. Beck, E. B. Eddy Co., who took the Technical Service Award for outstanding leadership of a committee, in this instance the Fine Papers Committee; to R. M. Black, Powell River, and E. Bourchard, Brown Corp., who won first and second prize respectively from the Engineering Committee; and the Beauharnois mill of Howard Paper Co. and the Kapiskasing mill of Kimberly-Clark received the safety shields.

E. J. Thom, manager of the pulp department for Howard Smith at Montreal, and chairman of the mechanical pulp section of the association, reported that demand for groundwood continued strong, and the chemical pulp section also had good news to report from F. G. Robinson, chairman of the chemical pulp section and vice president of Canadian International, Montreal. Chemical pulp production increased about 10%, and shipments to the United Kingdom rose sharply by about 37% over 1947. "There is no immediate prospect of significant increases in production of wood pulp in Canada," Mr. Robinson said, "although they are constantly going on within the industry technological improvements which mean increased output." But a survey conducted during 1948 in collaboration with other industry and governmental agencies showed, even yet, a world shortage of pulp.

The Technical Sessions

The technical sessions covered a wide area, from wheat straw for board

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Note on this page the new laboratory pictures from the Abitibi Company showing that Mr. Ambridge is a man of deeds as well as words. His company is doing something about it!

VIEWS OF ABITIBI'S NEW LABORATORY FACILITIES in Sault Ste. Marie, Ont.
The Organic Laboratory is at left. At right is the pulp testing lab.

through alkaline pulping, wood handling, mechanical pulping, fine papers, and newsprint, and also included many special subjects.

Highlights of the technical program on Jan. 26 were the discussion of "Wheat Straw for Improved Paper and Board Products" by Dr. E. C. Lathrop (see 1948 North American Review Number of **PULP & PAPER**) of the Northern Regional Research Laboratory at Peoria, Ill.; "The Board Mill of the Future" by Glen Sutton, Sutherland Paper Co., Kalamazoo; and "Essentials of a Sound Industrial Relations Program" by J. Vallillee, Ontario Paper Co., Ltd., who is chairman of CPPA's industrial relations section. F. L. La Que and K. H. J. Clarke of the International Nickel Co. of Canada talked on "Corrosion of Alkaline Pulping Mill Equipment" and, in the same session, H. W. Buzzell, Dominion Bridge Co., discussed wood handling with W. C. Baggs of Bathurst Power & Paper Co., Ltd. George Dick of Canadian Ingersoll-Rand talked on recent developments in welded barking drums.

"Materials Handling in Fine Paper Mills" was given by Harry E. Stocker of Harry E. Stocker Associates; and D. D. Hall, E. B. Eddy Co., discussed materials handling in specialty paper mills.

Of high interest was the discussion of curlated pulp by H. S. Hill, J. Edwards and L. R. Beath, Price Brothers and Company, Ltd., who told of making permanent changes in the shape of pulp fibres by causing nodules of high consistency pulp to roll in changing directions between two surfaces which compress the nodules. F. P. Silver, Price Brothers, also discussed the "curlator" in its application to high yield newsprint sulfite.

DR. R. D. DUNCAN (left), Canadian International Paper Co., discussed complicated subject in his paper on Magnesium Cathodic Protection to Inhibit Corrosion. D. D. HALL (right), The E. B. Eddy Co., talked on Materials Handling in Specialty Paper Mills.

Henry J. Perry, consulting engineer of Catham, N. J., and secretary of the new Manhattan technical group, spoke on the modernization of small groundwood mills, and in the same meeting W. T. Butler, Abitibi, and B. B. Gralow, Ontario Paper, took up the subject of waste, the former giving a general review of waste sulfite liquor evaporation and the latter discussing calcium sulfite and sulfate solubilities.

On the 27th, S. Clark, Thunder Bay Paper Co., talked on groundwood mill and screen room heating and ventilation, and Dr. R. D. Duncan, Canadian International, discussed magnesium cathodic protection to inhibit bronze facing wires on groundwood deckers.

Paper machines came in for attention on the 28th when R. J. Spencer-Phillips of Bepco described Harland section electric drive as applied to a paper machine, and J. P. Woods, Consolidated Paper Corp., delivered a paper on "Hypothetical Application of a Heat Pump to Paper Machine Dryers." In a parallel session alkaline pulping came in for attention in a forum, and Dr. J. Edwards, Price Brothers, introduced the subject of mechanical pulp screening with a paper. In the sulfite division R. Stafford, Spruce Falls Power & Paper Co., Ltd., discussed the treatment of slime with hypochlorite. At the same time a group had the pleasure of listening to a distinguished visitor, Dr. Borje Steenberg of the Swedish Forest Products Research Laboratory in Stockholm, who spoke on "The Behavior of Paper Under Stress and Strain" and who also described the work of the Swedish laboratory.

There were a number of group discussions in the afternoon of the last day, including a forum on drying of paperboard. W. C. R. Jones, Howard Smith, led a discussion of maintenance and operating problems in the manufacture of fine papers. R. C. Mode, Provincial Paper Ltd., led a group on the general subject of paper machines, while W. E. Rice, Canada Paper Company, led off on maintenance.

F. R. Riley and H. B. Urquhart, Powell River, described the new newsprint machine at their British Columbia mill (see February, 1949 issue of **PULP & PAPER**) and this was followed by a panel discussion.

New Laboratory for Abitibi Power & Paper Co.

"One of the functions of research in industry is to prevent a business from dying of old age," says President D. W. Ambridge, of Abitibi Power & Paper Co., one of Canada's biggest pulp and paper organizations, and this concept is largely responsible for the emphasis that Abitibi has been placing on research in recent years.

At Sault Ste. Marie, Ontario, the company has converted an old building into a brand new research and development laboratory with extensive facilities for chemical and physical experimentation.

"Research at the Soo will keep Abitibi young and vigorous," says Mr. Ambridge. "It is expensive medicine and the money that is spent on it each year in the future must be made and saved out of current production. There is no easy road to success in the business of keeping a company young. If we are to have the money to spend on research we must first make it and then we must set it aside for the purpose."

Abitibi spent $180,000 on equipping and manning its laboratory at Sault Ste. Marie. Ten persons are now engaged in the laboratory. One of the features is a pilot plant section some 8000 square feet in area, containing large units of equipment including digesters, refining and screening facilities, storage space, stock room and machine shop.

The organic and analytical laboratories contain the usual pieces of equipment for this type of work. For years what is now the analytical laboratory served as the round house for the Sault division yard locomotive but is completely rebuilt. A constant humidity-temperature room and a general laboratory, devoted largely to the small scale processing of pulp and containing specialized equipment for bleaching, refining and sheet making, are other divisions of pulp suspensions.

A research committee consists of Dr. Dorland, director of research; L. Cleminson, assistant manager of mills for Abitibi, and Dr. G. I. Hoover, assistant manager of development and control for Provincial.

PERFECTION OF A NEW TUBER machine possessing a wide range and an ability to produce one-third faster than older types has been effected by Union Bag & Paper Co., Savannah, Ga. *W. L. DAVIS*, formerly at Camden, Ark., designed the new machine.

Abitibi Begins Sodium Sulfate Plant

D. W. Ambridge, president of Abitibi Power & Paper Co., announces that construction will begin at once on a chemical plant to produce sodium sulfate at the company's Sturgeon Falls mill, 25 miles west of North Bay, Ont. The plant will be housed in a new building.

Sturgeon Falls mill is nominally a 100-ton per day neutral sulfite semi-chemical corrugating board plant. At present sodium sulfite required for cooking is being purchased in prepared form. The mill now intends to build its own plant for producing the necessary sodium sulfite for cooking from soda ash and sulphur dioxide. Sulphur dioxide will be prepared in the usual manner by burning sulphur.

New Boiler Installed

A new additional boiler went into operation at St. Helens Pulp & Paper Co. plant, St. Helens, Ore., in mid-January. This Babcock & Wilcox boiler has been installed as a part of the company's plant modernization program which is expected to be complete by the end of the year.

Liquid Chlorine Versus Bleaching Powder

Although bleaching powder was in regular use by pulp and paper makers for many years, it carried with it time consuming and costly difficulties. Bleaching powder was never stable in storage and when made into bleach liquor, it was difficult to get clear solutions and to eliminate sludge.

When liquid chlorine became readily and cheaply available, the old bleach powder methods could be discarded. Under the stimulus of production for World War I, electrolytic cell design improved, chlorine production increased and economical methods of liquifying and transporting were developed. Hooker engineers and chemists played an important part in this progress. They also helped specifically in the pulp and paper industry not only in improving bleaching techniques but in the designing of bleaching equipment.

Hooker technicians are constantly engaged in making available for you the high purity liquid chlorine and other Hooker chemicals you use. The results of their studies, too, are available in Hooker Technical Bulletins and cover a wide range of subjects of interest to pulp and paper makers. A list of the titles of these bulletins and copies of those you would like to have will be sent to you when requested on your letterhead.

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY
2 UNION STREET • NIAGARA FALLS, N. Y.
New York, New York • Wilmington, California • Tacoma, Washington

From the Salt of the Earth

2800 Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorobenzene Sodium Sulfhydrate Chlorine

NOVEL WOOD HANDLING SYSTEM

How a Naval Stores Plant in South Does It

The naval stores industry dates from antiquity—from the admonition given Noah to "pitch" the Ark inside and out. Some 80 naval stores products—rosins, turpentine, pine oil, dipentine and related solvents—are used in soap manufacture, the laundry field, core oils, lube greases and paper sizing, shoe polish and hog dehairing, paint and varnish and phonograph records, ore flotation, wetting agents and perfume.

The industry is divided into two sections, the older being the gum, which became dominant in the South in 1770. These operators tap live trees, the gum yielding rosin and turpentine. The longleaf and slash varieties of Southern pine are "naval stores" trees.

The wood extraction section dates from 1909 and today accounts for about half the turpentine and rosin produced. This includes processing of old stumps yielding rosin, turpentine, dipentine and pine oil and the byproducts from digester operation in yellow pine pulp mills, yielding turpentine and tall oil.

When the lumber industry harvested the even-aged virgin pine in the South, it left millions of acres burdened with stumps. Much of this acreage is better suited for forest growing than agriculture. A large proportion laid idle or semi-idle until the stump extraction industry fitted into the economic picture. A large 21-ton crawler type tractor equipped with steel front fork pushes the stump out of the ground, roots and all, and recovers more wood than the blasting. Stumps are then broken by blasting and chopping.

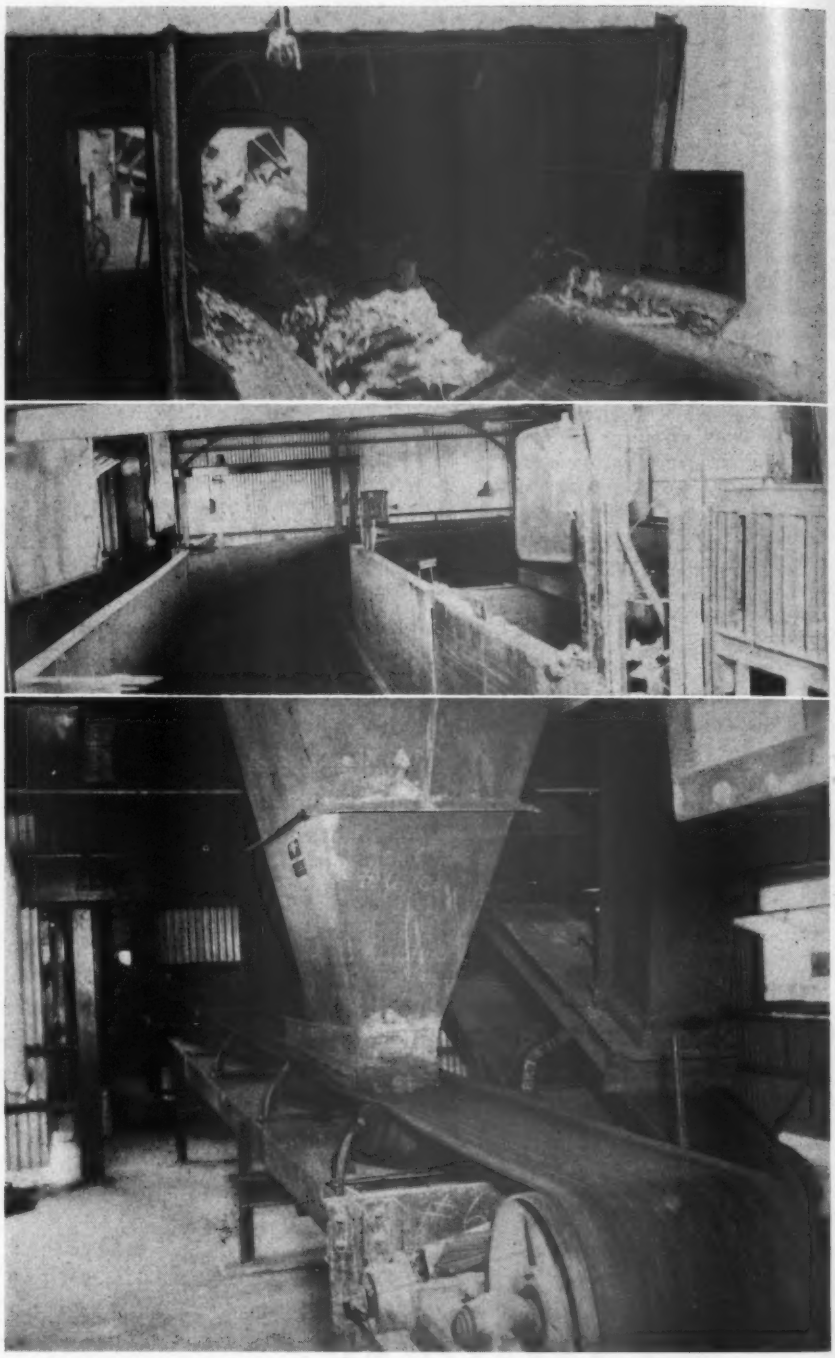
Efficient removal of these old tree stumps is resulting in thousands of acres being put into shape rapidly for reforestation, and for pastures and farming.

An acre of stump-land will yield 1½ to 4 tons of wood. A 150 tons per day extraction plant would use 54,000 tons of stumps a year which could be secured from about 22,000 acres. Payment to the land owners would be about $25,000, which helps to pay for re-foresting. The payment to those who produced the stumps would be about $225,000.

When a truck loaded with stump wood reaches the new extraction plant of Newport Industries, Inc., at Oakdale, La., a Lorain (Thew Shovel Co.) crane, powered by a Caterpillar Diesel motor takes the load in cable sling at one swoop.

The average load is 6 tons, but they range from 5 to 9 or 10 tons. When feeding wood to a steel chain conveyor, the crane uses an orange peel bucket. Wood then goes through a course of preparation similar to that of pulpwood and the handling system is an interesting one for this industry.

The Newport plant uses continuous process steps in place of batches wherever possible. The plant utilizes 500 tons of stumps per day, yielding about 100 tons of rosin.



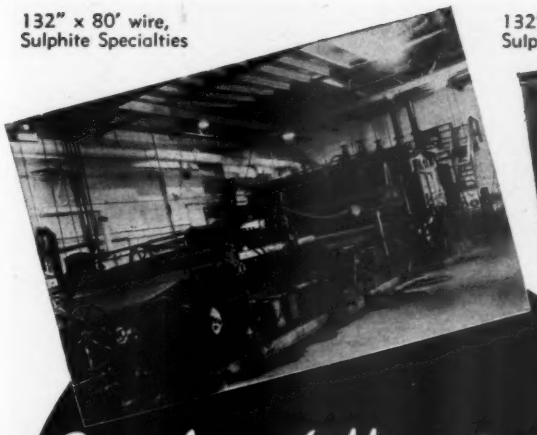
AT NEWPORT PLANT: Top—Ruggedness of Link-Belt wood stump handling installation is a characteristic of this conveyor, seen in this view of the wash house passage, taken from the transfer house.

Middle—Wood is transferred to this five-foot rubber belt from which it is deflected by gates into either of two hogs.

Bottom—Chips that pass bull screen are hoppered down to belt conveyor that passes on through automatic Merrick Scale Co. Weight-O-Meter to prepared chip bin.

Stone and Webster Engineering Corp., in collaboration with Link Belt Co. engineers, produced an installation at Oakdale

132" x 80' wire,
Sulphite Specialties

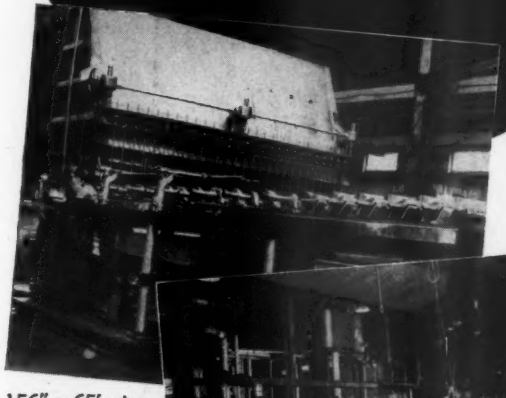


132" x 80' wire,
Sulphite Specialties

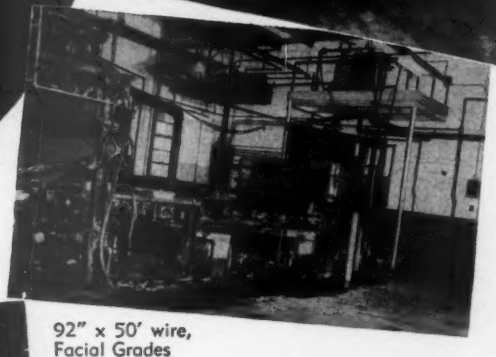
92" x 35' wire,
Toilet Tissue

Sandy Hill
Fourdriniers

Some New
Installations



156" x 65' wire,
Tissue and Towel



92" x 50' wire,
Facial Grades

156" x 80' wire,
Groundwood Specialties

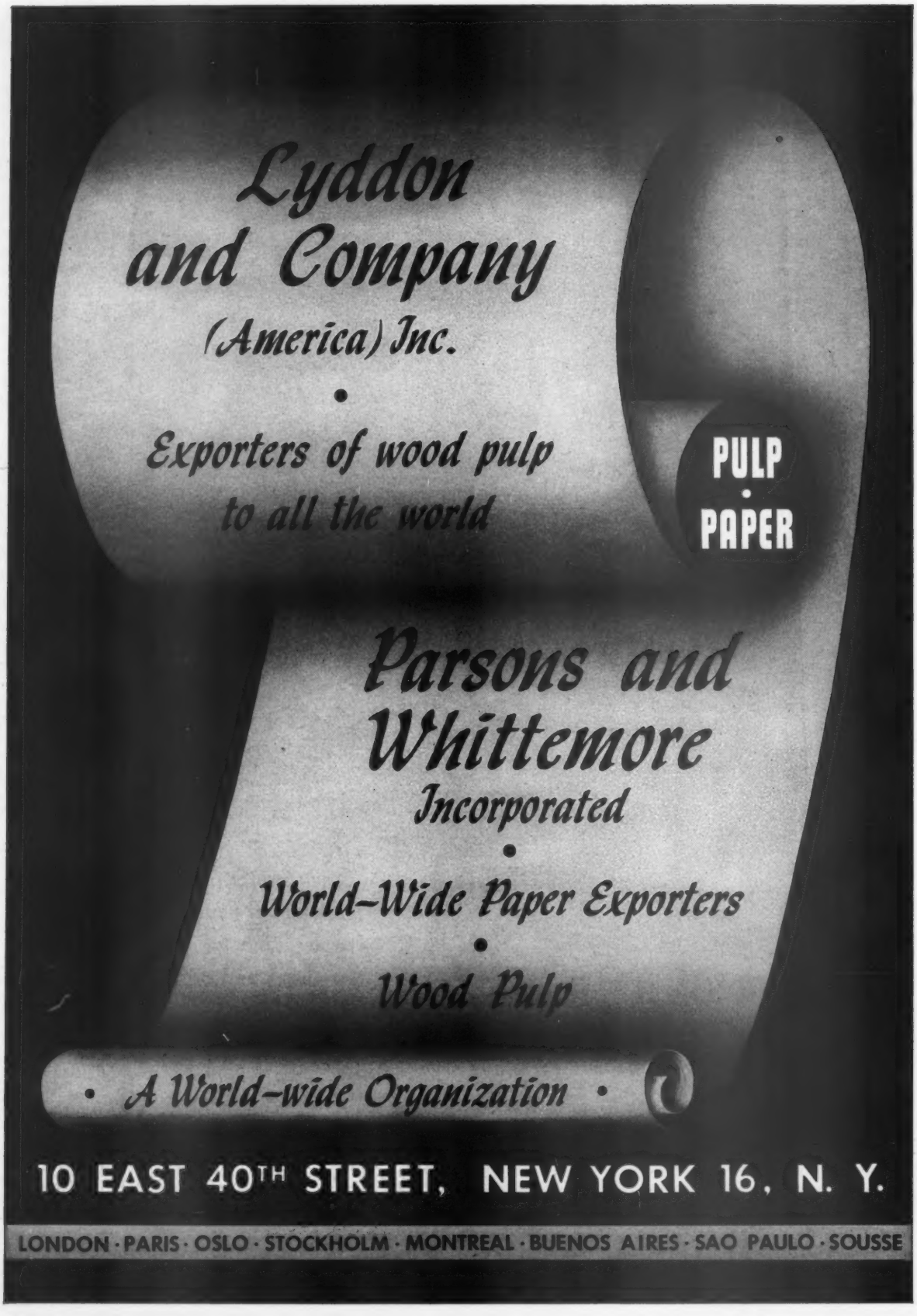
Sandy Hill is prepared to build any type of paper machine fourdrinier, either for improvement of formation and production, or in combination with a complete machine.

Sandy Hill Iron & Brass Works

Hudson Falls, N. Y.

Machinists and Founders Specializing in Pulp and Paper Mill Machinery

Manufacturers of	Pulpers or Kneaders, Voith	Nelson Slice	Castings
Adjustable Cylinder Vats	Thickeners	Feltless Wet Machines	Bleaching Equipment
Cylinder Paper Machines	Quick Opening Gate Valves	"Selective" and Corner Drives	Scofield Felt Conditioners
Pulp Grinders	Bertrams Flow Distributors	Fourdrinier Paper Machines	Cleveland Type Bearings
Dandy Roll Drives	Bertrams Shakes	"Packer" Screens	Shaker Screens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that has attracted much attention. Each step in preparation is housed in a separate structure, erected along a straight line, with conveyors bringing material to the top each time, and picking it up again at the lower level after processing. This affords good light and ventilation for employes and minimizes fire hazard.

A steel Link-Belt chain conveyor carries wood from the yard through a spray wash house up to the top of the transfer house. Through a hopper wood is fed by belt to the top of the hog house and deflected by gates into either of two hogs.

The chips are conveyed to the next structure for screening over a W. S. Tyler Co. ⅛-inch mesh screen. Accepted chips are hopper-fed to a belt that starts knee high and reaches better than head high elevation in the next house. Rejected chips pass through a shredder, then screen again, if necessary and another shredder. These belts feed through hopper to a final belt passing upward to chip bins through a Merrick Scale Co. Weight-O-Meter.

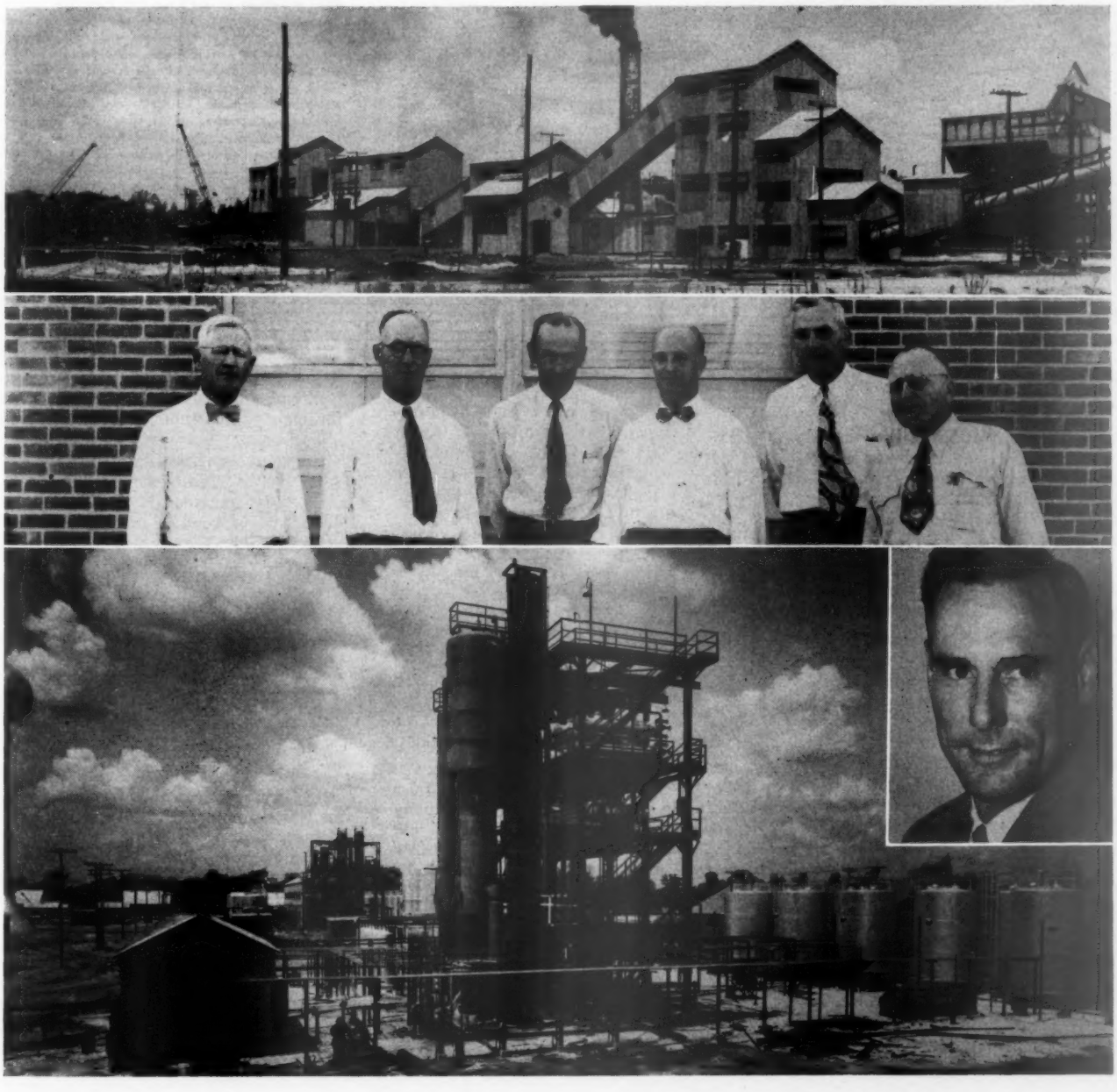
From chip bins, stock is loaded as needed into tops of extractors, upright pressure vessels holding approximately 15 tons of chips, packed by means of rods and steam. Hot petholeum naphtha under pressure is used in a counter current process. Solvent is then drained and goes through refining inflow and high pressure evaporators. Chips are steamed to remove residual solvent. Spent chips are used for boiler house fuel. Rosin recovered from the refining is known as "FF" wood rosin. Crude terpene pils are washed or treated with a caustic soda to remove impurities and improve odor and go to

THE MEN AND THE NAVAL STORES PLANT at Oakdale, La. Top—Preparation of stump wood for chips is carried on in series of buildings—one step in each—connected by Link-Belt conveyor system. Left to right: Wash house, transfer house, hog house, and shredder house. Lorain cranes handle stumps at left. Chip preparation bin is out of sight at right.

Middle—(left to right)—H. L. SMITH, La. Operations Manager; JOHN H. McCORMACK, President and General Manager; E. F. SISSON, Vice President in charge of Engineering; S. J. SPITZ, Sales Manager; JOHN J. McCABE, Vice President and Treasurer; FRANK HAVER, Memphis Sales Office Manager.

Bottom—Partial view of Oakdale plant showing finishing area where solvent liquor is refined. Control instruments in small building at left. Stone and Webster Engineering Corp. did the engineering.

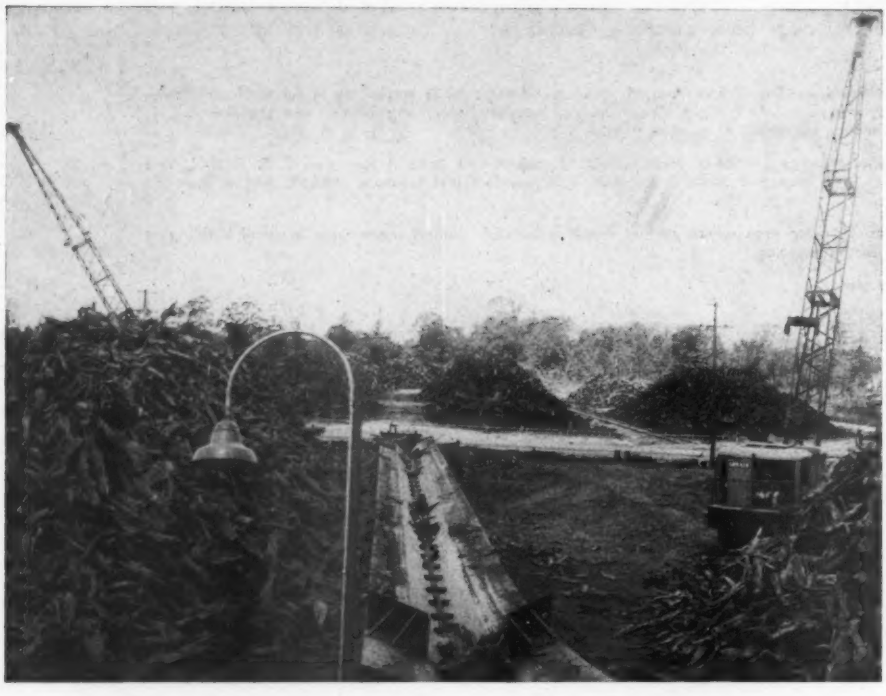
Insert—H. E. ROSE, Superintendent of Oakdale plant.



fractional stills for separation into products.

Newport Industries, Inc., was formed 1913, Vera Chemical Co., also a Milwaukee, manufacturer of paper chemicals, interested the Newport Company in new pine stump distillate plant at Bay Minette, Ala. A plant was built in Pensacola, Fla., in 1915, and another acquired at DeQuincy, La., in 1928. The three plants have been expanded to utilize 1100 tons daily. The new Oakdale plant, costing $5,000,000, adds 500 tons to the total stump use.

AT NEWPORT PLANT steel Link Belt chain conveyor carries wood from yard through a spray wash house to top of transfer house. Lorain crane, shown at right, takes load in cable sling at one swoop.



St. Regis V. P. Urges Industrial Reciprocity

Political foreign relations policy should be implemented with an enlightened policy of industrial foreign relations to aid economically floundering nations, according to Kenneth D. Lozier, vice president of St. Regis Sales Corp.

Mr. Lozier for some years has directed advertsing, sales promotion and public relations for St. Regis Paper Co.

In a mutual pooling of industrial knowledge and experience, Mr. Lozier said, there would be much that we could learn from other nations. He cited his company and others in the paper industry, itself sixth largest in the country, as an example of technical assistance of mutual benefits among nations, pointing out that many of the modern paper making machines stemmed from a program of technical interchanges such as St. Regis is carrying on with its licensees and customers in Europe and South America.

"Expand this kind of technical aid to encompass U. S. industry as a whole," Mr. Lozier added, "and you will have the pattern for a broad educational program to back up our national foreign relations policy, to implement the vast sums and the huge shipments of materials we are sending overseas."

Gaylord Appointments

Three new appointments have been announced by Gaylord Container Corp. of Bogalusa, La., R. S. Updyke is now manager of the Milwaukee operations and Glenn B. Elliott, sales manager. Emil Fredericks is the new plant superintendent. All are experienced in the corrugated box field.

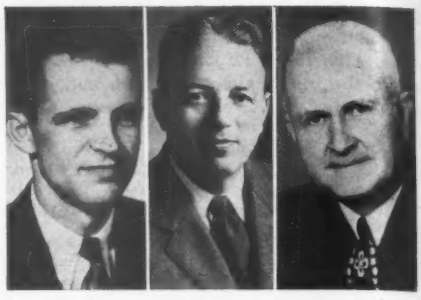
AUSTELL BOX BOARD CORP.'S new plant, now in process of erection at Austell, Ga., is scheduled to start production in mid-summer of 1949, according to Ross Puette, president of Carolina Paper Board Corp., Charlotte, N. C., who is also head of Austell.

HEADQUARTERS OF THE Woodlands Department of St. Joe Paper Co., have been moved from the Midyette-Moore Building in Tallahassee to a new company location about six miles out, via the old San Augustine road. *ROBERT C. BRENT* is general manager of the department.

CONSTRUCTION OF AN $80,000,000 *RAYON* and allied products plant at Demopolis, Ala., is contingent upon reduction of import duties on certain machinery and equipment to be brought from Italy, according to Frank K. Boykin, Alabama congressman. The new plant, if constructed, would use pulp wood as its source of raw material.

Personals

SOUTH



Three new Vice Presidents of Union Bag & Paper Corp. (l. to r.) Alexander Calder, Jr., James L. Knipe, and T. T. Dunn. Mr. Calder, Jr., has been Assistant to the Vice President in charge of sales, Mr. Knipe has been Assistant to the President and they remain in New York. Mr. T. T. Dunn continues as Resident Manager in charge of the Savannah, Ga., operations. Mr. Calder, Jr., was wartime intelligence officer with the Board of Economic Warfare, and served for two years as a naval officer in the Pacific. He is graduate of Dartmouth and Harvard Business School. Mr. Knipe, a native of Marshall, Ill., and a well-known economist, is a holder of a doctor of philosophy degree from Yale University. Mr. Dunn is a graduate in engineering of Louisiana State U., and joined Union Bag in Savannah in 1940 from a Bogalusa, Ala., mill where for 13 years he was Chief Engineer.

Union Bag Promotions

Promotions and reassignments in the technical division at Union Bag & Paper Co., Savannah, Ga., were announced by M. L. Taylor, director, as follows: J. R. Upson, from general foreman of instruments to instrument supervisor; W. J. Sullivan, from instrument man to general foreman of instruments; Alex H. Morris, from process engineering group leader to instrument engineering group leader; J. E. Overall, from chemical engineer to instrument engineer; C. S. Walseth, from chemical engineer to process engineering group leader.

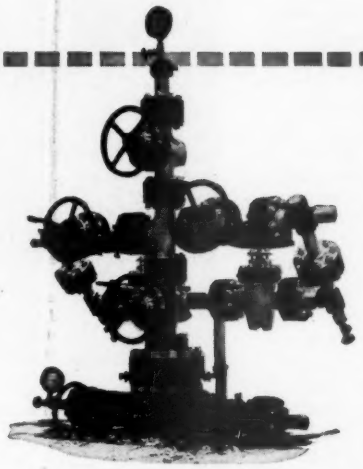
M. O. STARK has been named conservation forester for International Paper Co. in Mississippi. He was formerly with Mississippi Forestry Commission. *ROBERT NONNEMACHER*, formerly conservation forester, changed into wood procurement.

JOHN W. BYRD has been named conservation forester for Gulf States Paper Corp. He succeeded Henry Wilson, who joined Clancy Lumber Co., Grayson, Ala.

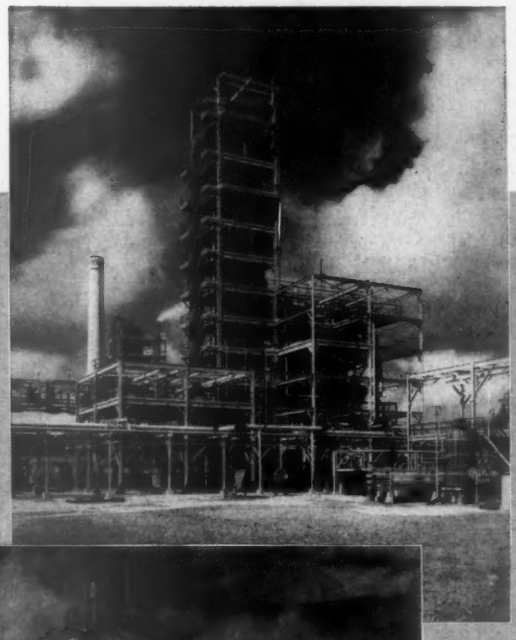
BERT M. LEE, rewinder room shift foreman at Champion Paper and Fibre Co.'s Canton, N. C., mill, has a record to shoot at. On February 1 he completed 31 years' continuous service without ever having lost a shift when he was scheduled to work or failing to report when called for duty when he was on stagger shift.

VEDEN H. SMITH has been named sales and service distributor for Mall products in Florida, south Georgia, and south Alabama. His headquarters will be at 1604 South Monroe St., Tallahassee, Fla. Mr. Smith is a graduate forester.

FROM WELL HEAD to FINISHED PRODUCTS



Our work for the process industries includes engineering design and construction of a wide range of installations for natural gas, refining and chemical operations from well head to finished products.



STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

Personals

MIDDLE WEST

LEADERS at Lakes States Technical Section meeting in February were from Appleton Machine Co. Left to right: E. E. THOMAS, Sales Engineer, and speaker of the evening; President H. L. MADSEN, and DICK RADSCH.

HENRY PRESS is now associated with Marathon Corp., Menasha, Wis., working on the manufacturing engineering staff in the capacity of process engineer specializing on paper making problems, according to Roy Sund, manufacturing vice president. Mr. Press was formerly identified with the New England industry. He came to U. S. in the middle '20s and had been manager of a fine paper mill in Germany and was a student in Darmstadt Institute under Dr. Emil Heuser. His work with Marathon is chiefly at the Menominee, Mich., mill.

WILLIAM KREHNKE, of the Port Edwards, Wis., mill maintenance department with 58 years of service, and *FRANK PILOT,* pulp mills superintendent, with 56 years employment, head a list of 50 Nekoosa-Edwards Paper Co. employes placed on pension under a new retirement plan. Others include C. A. Jasperson, secretary-treasurer, and Herman Zurfluh, on Nekoosa, Wis., mill machines with 50-year records.

CHARLES A. POLANSKY of the Nekoosa-Edwards Paper Co., Port Edwards, Wis., sales department, has been named order department manager, succeeding Ray A. Love who has retired, and Clarence A. Hodlmair of the company's Chicago office has been named manager of that office succeeding I. N. Frisby, also retired.

LUTHER V. THIEL has joined F. C. Huyck & Sons, according to President Francis H. Eldridge, as Midwest papermaker felt sales representative. He was previously with Shartle Bros. Co. for 22 years, as an engineer and salsman.

DONALD W. GRAHAM has been appointed district sales manager of heavy chemicals div. of Pennsylvania Salt Manufacturing Co., in charge of the Cincinnati sales office.

Appleton Engineer Talks To Lake States Group

E. E. Thomas, sales engineer for the Appleton Machine Co., who is recognized for his work in the field of paper finishing and the equipment for this production work, was principal speaker at the February 8 meeting of Lakes States Section, Technical Association. A packed house greeted Thomas and his associates at Appleton Machine, including H. L. Madsen, president; Dick Radsch, and H. L. Wendshuh, officers.

Mr. Thomas' brief talk was mainly background material about calendering and supercalendering prior to his presentation of two motion pictures. He cited some challenges presented to machinery manufacturers in recent years as development of higher grade and more specialized papers placed added requirements on the supercalender.

The motion pictures showed the new Appleton supercalender in operation at speeds to 2,000 ft., and stressed relative freedom from detail given the calendering superintendent so that his attention can be focused on finishing control. The second picture showed operation of a new Appleton rewinder of advanced design.

Ohio Man Promoted

The promotion of M. E. Barthen to assistant to the president of Ohio Boxboard Co., Rittman, O., has just been announced by Wayne Young, president of the company. Mr. Barthen has been with the company since 1935, serving as district sales manager and as manager of carton and container sales.

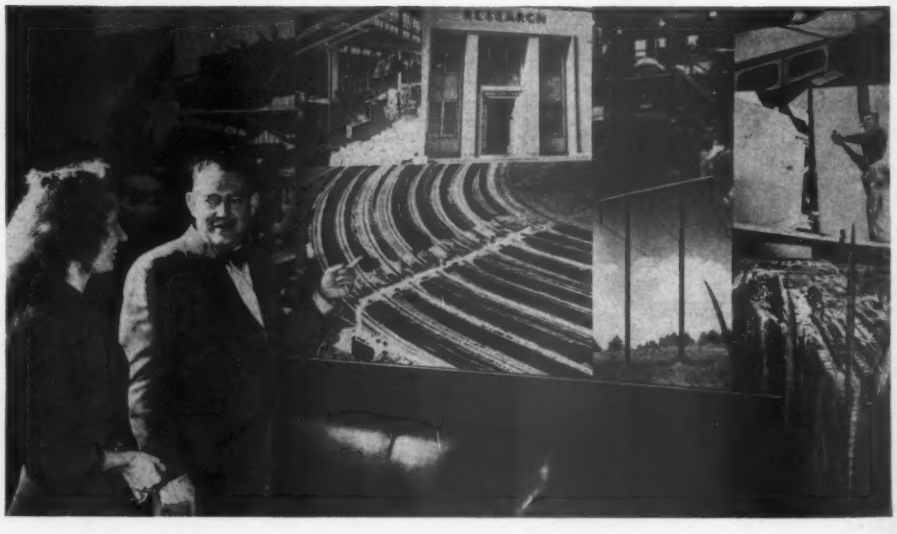
J. M. Kernan has been promoted to the position Mr. Barthen vacates as general superintendent of the company's carton division.

LOUIS R. GAIENNIE has been appointed director of personnel of Fairbanks, Morse & Co., at the Beloit, Wis., plant.

ROBERT H. PETE (left) electrochemicals dept., Du Pont, Niagara Falls, N. Y., and *FRED R. SHELDON* (right) Buffalo Electrochemical Co,, Buffalo, N. Y., in a picture taken during a Michigan division meeting of the Superintendents, where the pair served on a discussion panel.

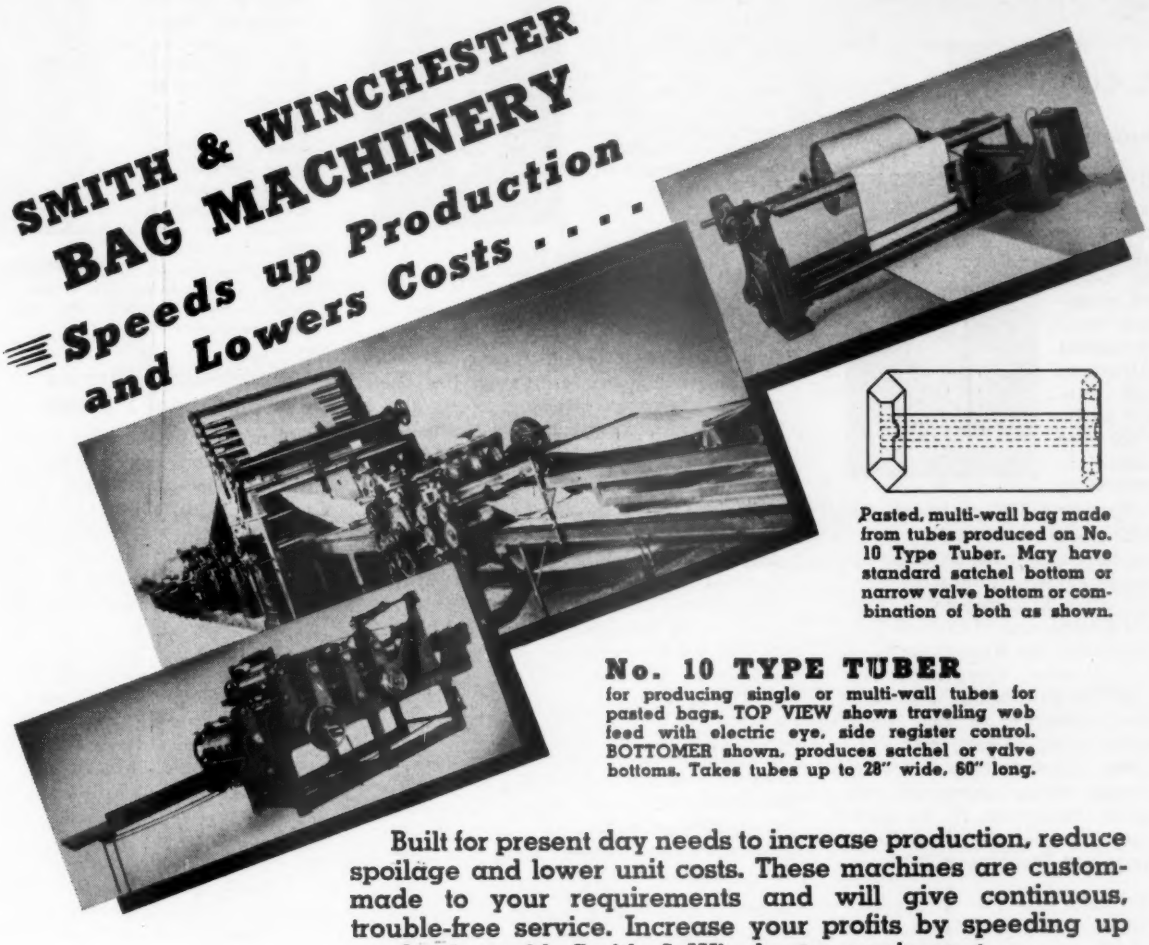
MALCOLM SPEIDEL, veteran superintendent of river drives in Ontario for Kimberly-Clark, topped all story-telling at a recent LongLac mill wedding party with this one: He wore red-tasseled moccasins walking across transparent ice on Lake Nipigon, and carried a hatchet. The fish knocked themselves out against the ice trying to get the tassels. Of course, he would quickly cut a hole in the ice with his hatchet and grab the groggy fish.

ENLARGED PHOTOGRAPHS showing every dramatic phase of pulp and paper manufacture—from cutting of trees to use of finished paper by industry—are included in giant photo murals recently placed in the Chicago office of Minnesota and Ontario Paper Co. Here Paul Joslin, Manager, Mando Chicago sales office and Jeanette Andersen, secretary, look over murals which include views of the three large Mando mills at International Falls, Minn., Kenora and Fort Frances, Ont., as well as interior mill views.



SMITH & WINCHESTER BAG MACHINERY

Speeds up Production and Lowers Costs . . . .

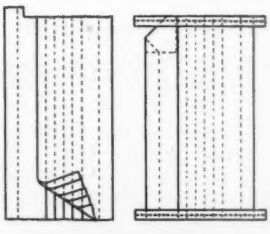


Pasted, multi-wall bag made from tubes produced on No. 10 Type Tuber. May have standard satchel bottom or narrow valve bottom or combination of both as shown.

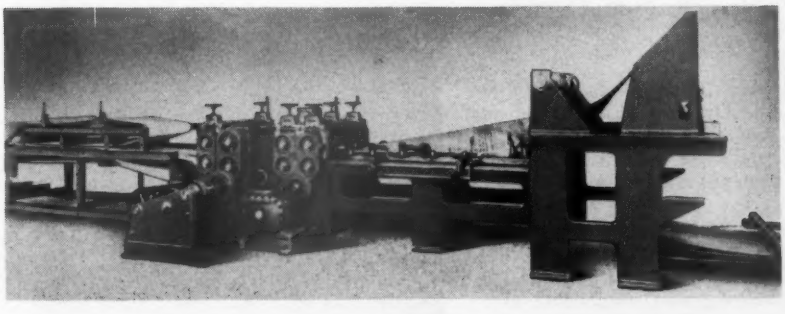
No. 10 TYPE TUBER

for producing single or multi-wall tubes for pasted bags. TOP VIEW shows traveling web feed with electric eye, side register control. BOTTOMER shown, produces satchel or valve bottoms. Takes tubes up to 28" wide, 60" long.

Built for present day needs to increase production, reduce spoilage and lower unit costs. These machines are custom-made to your requirements and will give continuous, trouble-free service. Increase your profits by speeding up production with Smith & Winchester equipment.



Multi-wall, sewed valve type, gussetted tube made on Smith & Winchester Multi-wall Tuber.



S & W MULTI-WALL TUBER

Up to 100,000 valve notch tubes each 8-hour day may be produced on this Multi-wall Tuber for sewed valve bags. One to 6 walls. Machine built in 2 sizes, 20" and 26" face. Up to 6" gussets. Tubes 26" to 50" long. Improved cross pasting units, photo-electric compensating drives and flying splice paper roll stands can be furnished.
If you have a bag problem write us.

THE SMITH & WINCHESTER
Manufacturing Company
South Windham, Conn.

SERVING THE PAPER INDUSTRY SINCE 1828

Personals

PACIFIC COAST

Quinn Becomes Stebbins President

Albert S. Quinn, (right), for the past ten years vice president of Stebbins Engineering Corp., was elected president of that company at a recent Board of Directors meeting. He succeeds Carl F. Richter who becomes secretary. Other officers elected were Edward F. Tucker, vice president and Howard W. Duggan, treasurer.

Mr. Quinn has been with Stebbins for over twenty years having joined the company shortly after his graduation from the College of Engineering at Cornell University. He served in the Watertown, N. Y. office, and at Montreal, Que., before his transfer to the Pacific Coast in 1930. He is past secretary - treasurer of the Pacific Coast Superintendents' Assn.

Mr. Duggan will continue as chief engineer of the parent company with headquarters in Watertown, N. Y., while serving as an officer of the West Coast company. He joined Stebbins in 1933.

R. A. McDONALD, executive vice president of Crown Zellerbach Corp., San Francisco, Calif., was guest speaker at annual meeting of Pacific Northwest Newspaper Assn., Feb. 4, at Portland, Ore. His topic was newsprint—supply and demand.

MARVIN C. JONES, mill manager of the new Springfield, Ore., kraft containerboard mill of Weyerhaeuser Timber Co., arrived there and took up residence in an apartment in January, overseeing completion of mill construction. He will move his wife and children west from their home in Battle Creek, Mich., after the close of school in June. He was chief director of engineering and purchasing of the Michigan Carton Co. there.

SI POSEN has become associated with Gilman Paper Co., 630 Fifth Ave., New York, and now resides with his family at 108-24 Sixty-third Drive, Forest Hills, Long Island. Mr. Posen was formerly business manager of the Central Chemical Laboratory of Rayonier at Shelton, Wash., and during the war was head of wood pulp unit of WPB.

RICHARD (DICK) ZELLERBACH'S engagement to Leslie Walsh, daughter of Mrs. James F. Walsh of Portland, Ore., and the late Mr. Walsh, has been formally announced. Dick, son of J. D. Zellerbach, president of Crown Zellerbach, is working in the Camas, Wash., mill.

IRVING T. RAU, Secretary-Treasurer and Purchasing Agent of St. Helens Pulp & Paper Co., St. Helens, Ore., has been elected President of Columbia Empire Industries, Inc., for 1949. Mr. Rau became affiliated with the St. Helens pulp and paper firm in 1925, having previously been with Hawley Pulp & Paper Co. at Oregon City for 15 years.

Frisch Fir-Tex Manager

L. V. Frisch became mill manager for Fir-Tex Insulating Board Co., St. Helens, Ore., Jan. 14, it is announced by F. T. Griffith, president. Mr. Frisch has been with Fir-Tex since last May, as consulting engineer; previously he was consulting engineer in Portland and San Francisco. He replaces W. L. Failing who has resigned.

SIDNEY M. COLLIER, assistant superintendent, Puget Sound Pulp and Timber Co., was recently elected president of the Bellingham Public Forum, Inc. The Forum sponsors internationally known speakers for Bellingham audiences, and has a membership of five hundred.

HAROLD CAVIN, consulting engineer for Puget Sound Pulp and Timber Co., and Mrs. Cavin, spent the last two weeks of February at Sun Valley, Idaho, at the International Ski meet. Harold is president of the Mount Baker Ski club, and Mrs. Cavin is a sereval-times winner in downhill competition in the Northwest.

HARRY BINZER, treasurer of the Puget Sound Pulp and Timber Co., is a member of the newly appointed Whatcom County-Bellingham Airport Commission.

RAY SMYTHE, Manufacturers Agent for a number of leading pulp and paper making machinery firms, was elected President of Aero Club of Oregon, Portland, Ore., at a recent board of governors meeting. This club, a branch of National Aeronautical Assn., has been active about 30 years and is considered one of the largest such organizations of this country. Mr. Smythe also produces some pulp and paper industry equipment of his own manufacture.

WILLIAM E. DAMON, whose appointment as Pacific Coast Representative of Orr Felt & Blanket Co., Piqua, O., was announced on this page last month. Mr. Damon was with Crown Zellerbach for nine years, eight of them gaining experience in all departments of the mill in Camas, Wash., and the past year in the Portland, Ore., sales office. He attended Hastings College and the Univ. of Wisconsin. Mr. Damon lives at 525 Northwest 10th, Camas, Wash., and the family includes his wife, Betty, and children, William and Carolyn Sue.

Unusual Safety Record By Ten Crown Z Plants

Ten Crown Zellerbach plants, six paper mills and four converting plants operated through December, 1948 without a lost-time accident. Over 1,000,000 man-hours were worked safely by some 5,600 employes during the one-month period. Commendation for this achievement was forthcoming from Louis Bloch, chairman of the board, who wired the respective plants:

"We have just been advised that all six Crown Zellerbach pulp and paper mills in the U. S., all three Western Waxed divisions, and the converting plant at Harlingen, Texas, operated throughout December without a lost-time accident. Please extend to all employes in your division this expression of sincere appreciation on the part of the executive committee for the effort which made this possible. It was a great accomplishment in cooperation, but most important in the human suffering which was avoided."

Gardner Goes North

A. T. Gardner, assistant paper mill superintendent of Crown Zellerbach Corp., West Linn, Ore., since July, 1946, resigned that position in mid-February to become manager of Provincial Paper, Ltd., Cornwall, Ont. Prior to coming with the Crown-Z mill, Mr. Gardner was affiliated with Provincial Paper for five years as paper mill superintendent.

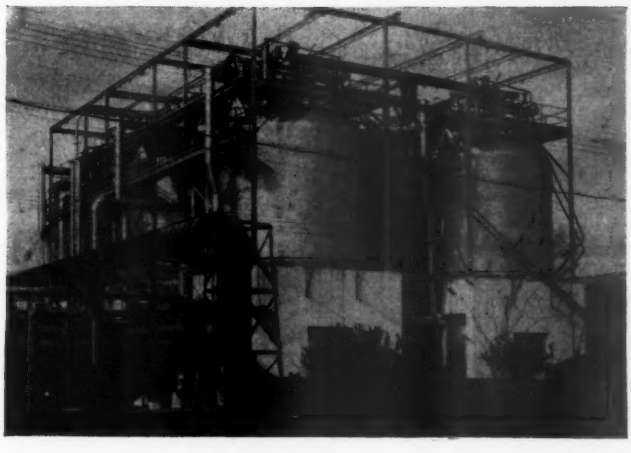
LAWSON TURCOTTE, executive vice president of Puget Sound Pulp & Timber Co., recently distributed twelve 20-year wrist watches to employes passing the two-decade mark in service and he presented retirement certificates, under the Retirement Plan started by the company in 1948, to James I. Fitch, E. B. Keyes, Charles Yeoman, Carl Knutsen, Arthur Moulton and Russell Barr.

PHOENIX, ARIZONA, was a winter haven for several Puget Sound Pulp and Timber Co. executives. Accompanied by their wives, Erik Ekholm, general superintendent; Carl Sahlin, logging manager, and Harry Koehler, engineering office, were on hand for the mid-winter golfing tournament at which Ben Hogan played his last game before his unfortunate automobile crash.

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

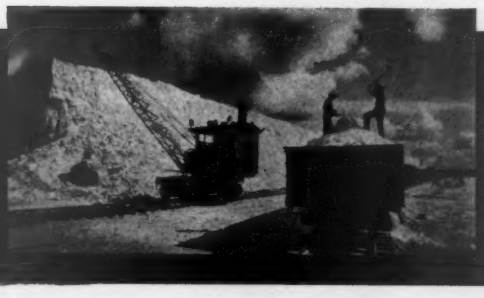
*SUPERHEATED WATER . . .



Mining operations are most successfully carried out if the water pumped into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.

To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.



TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

a complete paper machine installation in 16 months from the word "go"

This is the latest record of EBASCO engineers on a complete paper machine installation. For a southwestern paper mill, they did the complete job through their teamwork of engineering and installation.

Look for this same profitable speed in your own plans for expansion, modernization and installation of a complete new mill.

EBASCO designs buildings and equipment, purchases all components, erects and installs everything. We deliver to you *a paper machine in operation.*

If you'd like a complete outline of EBASCO's individualized services as engineers, constructors, and business consultants, write for our booklet THE INSIDE STORY OF OUTSIDE HELP. We'll send it to you promptly.

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Appraisal · Budget · Business Studies · Consulting Engineering
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Inspection & Expediting · Insurance & Pensions
Purchasing · Rates & Pricing · Research · Sales & Marketing
Systems & Methods · Taxes · Traffic

Personals

NORTHEAST

LYMAN A. BEEMAN, whose election as President of Finch, Pruyn & Co., Glens Falls, N. Y., was announced here last month. He was succeeded as Chief of Manuf. of Printing, Publication and Converting Div., St. Regis Paper Co., by Ben Cancell.

CHARLES G. WEBER, assistant chief of the Paper Section, Bureau of Standards, and well known to many technical men in the industry, died of a heart attack recently while delivering a lecture at the bureau where he had worked for 20 years. He served on the standardization committees of the technical association, was a veteran of World War I and gave valuable service in map work in the last war. He is survived by his wife and one daughter, and five brothers.

THOMAS B. McCABE, on leave without pay as president of Scott Paper Co., Chester, Pa., recently made a cross-country tour as chairman of the board of governors of the U. S. Federal Reserve Bank. In interviews he said there will be some downward adjustments of output and prices in some industries, and that inflationary pressures are easing. Mr. McCabe started 32 years ago as a $10 a week clerk with Scott.

HOWARD J. WHITE, a farm-reared, small-town boy who earned degrees in pharmacy and chemistry and then became one of the nation's authorities on synthetic fibers, has retired after nearly 34 years with E. I. du Pont de Nemours & Co., Wilmington, Del. He was an assistant manager of the rayon department, which manufactures and sells viscose process rayon, acetate process rayon, nylon, "Orlon" acrylic fiber, and cellophane, among other products.

DR. M. L. CROSSLEY, a director of research for the American Cyanamid Co., has been elected to receive an honorary membership in the American Institute of Chemists in recognition of his work in the field of chemistry. *AUGUST MERZ,* a research advisor and consultant for the American Cyanamid and one of their half-century employes, will present Dr. Crossley to the president of the A.I.C. for the award.

E. E. ESGATE, formerly with the American Pulpwood Association, has formed the E. E. Esgate Associates, Consultants, at 12 East 41st St., New York City. Mr. Esgate makes a specialty of pulpwood handling engineering.

Hooker Electrochemical Co. Announces Executive Changes

E. R. Bartlett, president of Hooker Electrochemical Co., Niagara Falls, N. Y., announces the resignation of H. M. Hooker as chairman of the board at his request but will continue as a member of the board.

R. L. Murray, who has been vice-president in charge of development and research, became executive vice president. R. W. Hooker, who has been vice president and sales manager, became vice president in charge of sales. J. H. Babcock became director of development and research. R. E. Wilkin, eastern sales manager became general sales manager with responsibilities extended to include the West Coast activities.

McFadden Moves

Joseph A. McFadden, assistant vice president, Chemical Bank & Trust Co., who has been following the pulp and paper industry for this bank, has been transferred from the office at 46th Street and Madison Avenue to the head office at 165 Broadway. Mr. McFadden will assume additional responsibilities as a loan officer but will continue his interest in the pulp and paper industry.

WILLIAM R. ADAMS, vice president in charge of all kraft operations of St. Regis Paper Co., with headquarters in Deferiet, N. Y., was planning a visit in late November to the Tacoma, Wash., St. Regis operations where work on a new paper mill is well advanced.

JOSEPH SHRAWDER, JR., has been named assistant director of sales of the Pigments Department of the Du Pont Co., Wilmington, Del. This is a newly created position. Mr. Shrawder has been manager of technical sales in the department. Robert H. Pohl, sales promotion manager for pigment colors, was named to succeed him as manager of technical sales.

CARLETON L. CLARK, Clark and Vicario, 683 Third Ave., New York, was a skiing casualty during the meeting of CPPA at Montreal earlier this year. After attending CPPA sessions, Mr. Clark decided to get in a little skiing—with results that kept him in Montreal for several days longer than he had planned.

HERBERT F. FREAS, veteran paper mill superintendent, Spaulding Fiber Co., Tonawanda, N. Y., received a gold watch from fellow employes at a testimonial dinner on his 70th birthday.

RALPH M. JOHNSON has been appointed vice president in charge of sales by Norton Co., Worcester, Mass. He was formerly vice president and general sales manager for the company's abrasive division.

I. N. KIMSEY is newly appointed field sales manager of the Industrial Products Sales department of The B. F. Goodrich Co. according to announcement by Chester F. Conner, department manager.

DANIEL J. WALSH, JR. of Lexington, Mass., is the new representative for Lockport Felt Co. of Newfane, N. Y., in the sale of its Tenax papermaker's felts in the New England states.

VESSEL DIVISION

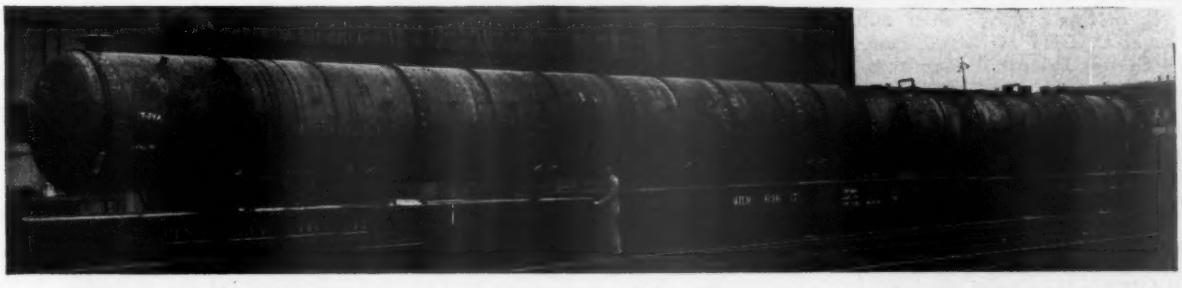
NEWS

A. O. SMITH Corporation

New York 17 • Philadelphia 5 • Pittsburgh 19 • Atlanta 3 • Chicago 4
Tulsa 3 • Houston 2 • Seattle 1 • Los Angeles 14
International Division: Milwaukee 1

NEW BULLETINS: Write the nearest A. O. Smith office listed above for these new Bulletins: V-44—Field Assembly of Pressure Vessels; V-46—SMITHway Vessels, Alloy, Alloy-Lined, Clad, and Glass-Lined.

BY WATER AND RAIL, A. O. Smith ships pressure vessels for the petroleum, paper, and process industries. The SMITH-lined Fractionating Tower above, one of the largest shop-fabricated vessels ever built (16 ft. diameter by 116 ft. long, weighing over 320,000 lbs.), is going by barge to an oil refinery in the Chicago area.



SOME 60 SMITHway PRESSURE VESSELS for both low and high temperature service have been ordered during the last four years by one company to equip two new plants. This SMITHway Tower, three railroad cars long, 116 ft. by 7 ft., weighing 137,000 lbs., is one of the types of vessels furnished.

THIS MAN KNOWS HIS CURVES: For 23 years, Frank Hilke has been shaping, to exact diameters, the shell courses of SMITHway Pressure Vessels. He uses a variety of rolls which can produce any diameter needed for pressure vessels.

RECORDING CONTACT RESISTANCE AS LOW AS 1/1,000,000 OHM. Knowing the amount of surface or contact resistance is an important factor in maintaining the consistent quality of the resistance spot welding used in SMITHlining pressure vessels. This resistance, which varies with each type and thickness of alloy lining used, and which can affect heat input and strength of the weld, is measured in this special SMITH-designed and SMITH-built machine.

Personals

CANADA

T. E. SILVER, who retired recently as manager of Manitoba Paper Co., Abitibi subsidiary at Pine Falls, Man., died in December, aged 59. A native of Augusta, Me., Mr. Silver had his introduction to the industry there in the Cushnoc Mill. In 1915 he went to Iroquois Falls. Later he was manager of mills for Abitibi but resigned in 1943 following a heart attack.

E. NENNIGER, of the Montreal consulting engineering firm of Surveyor, Nenniger & Chenevert, who has been working out details of the wood room layout of Columbia Cellulose Co.'s proposed new mill at Port Edward, B. C., with R. S. Baker, consultant, and Stadler & Hurter, in charge of the overall program, spent several days in British Columbia in February visiting plants and conferring with Canadian Sumner Iron Works, which is supplying the major wood room machinery.

C. H. SAGE, president of Spruce Falls Power & Paper Co., and vice president of the Kimberly Clark organization, was among the speakers at a banquet for 33 veterans of the Spruce Falls company. Other speakers were *E. S. NOBLE,* vice president; *F. S. SEABORNE,* chief mill manager for K-C. *GUY MINARD,* manager of the Spruce Falls mill, Kapuskasing, presided.

J. W. MOON, in charge of wood-handling operations for Australia Newsprint Mills, Ltd., of Boyer, Tasmania, visited several British Columbia sawmills and pulp mills during a few weeks' journey across the Pacific in February.

RALPH HAYES, who started his papermaking career with the Iroquois Falls mill of Abitibi Power & Paper Co., has assumed his new duties as manager of the Manitoba Paper Co., at Pine Falls, another Abitibi subsidiary. He succeeds the late T. E. Silver.

ARCHIE WELCH (left), formerly General Manager of Sidney Roofing & Paper Co., in Victoria, B. C., has been named General Manager of The E. B. Eddy Co., Hull, Que.

J. A. CRAIG (right), new General Manager of Sidney Roofing & Paper Co., Victoria, B. C., was formerly Secretary-Treasurer. He is also a member of the board and a director of the company's subsidiary, National Paper Box, Ltd.

MR. AND MRS. E. P. BRENNAN were at the Vancouver, B. C. airport when this picture was taken. Mr. Brennan is Manager of the Woodfibre mill of B. C. Pulp & Paper Co. He and his wife spent February at Honolulu.

ROSS BLACK, general superintendent of services, Powell River Co., has been awarded the 1948 engineering gadget competition prize sponsored by the Canadian Pulp and Paper Association.

G. M. LINDSAY, Sidney Roofing & Paper Co., Victoria, B. C., has been elected president of the Vancouver Island branch of the B. C. Purchasing Agents Association.

HENRY T. FISHER, formerly chief chemist with Peter Dixon & Son, Oughtbridge, England, has joined the staff of Quebec North Shore Paper Co., Baie Comeau, Que. He was temporarily located at Thorold, Ont., with the affiliated Ontario Paper Co. after arriving in Canada.

J. A. YOUNG, vice-president, and *R. H. R. YOUNG,* manager of manufacturing, Pacific Mills, Ltd., were among west coast delegates to the Montreal association meeting in January. *HAROLD S. FOLEY,* president, represented Powell River Co., with *DON McLAURIN,* control superintendent, and *HOWARD URQUHART,* assistant resident manager.

JOHN McMILLAN, who joined Powell River Co. three years ago, has been appointed assistant purchasing agent. He was with the U. S. Army during World War II and was employed by H. R. MacMillan and Boeing interests before entering the pulp and paper industry.

PRENTICE BLOEDEL, president, Bloedel, Stewart & Welch, Ltd., whose pulp mill is at Port Alberni, B. C., was one of the westerners who attended the Canadian Pulp and Paper Association annual meeting in Montreal.

A. J. WINCHESTER, recently appointed chief chemist for Donnaconna Paper Co., at Donnaconna, Que., was formerly with Price Bros. & Co., at Jonquiere, Que., in the same capacity.

CHESTER JORDAN, boss machine tender for Anglo Canadian Pulp and Paper Mills, Quebec City, has returned from a two months' visit to Europe, where he was a delegate to the meeting of the International Labor Office.

ROBERT H. HURLE, chief engineer of Paper Makers Proprietary, Ltd., Burnie, Tasmania, was a visitor to the Pacific Coast in February.

H. JASPER HUMPHREY, a director of Woods Manufacturing Co., has been appointed to the board of Dryden Paper Co., Dryden, Ont.

E. G. KIRBY, of Price & Pierce, Ltd., Montreal, has returned from a visit to the United Kingdom.

One of the Men Behind EASTWOOD WIRES—

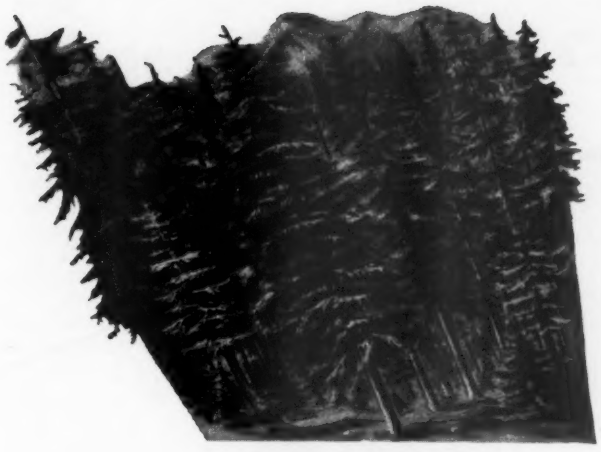
John Race
KEEPS "BOBBIN" ALONG

Thousands of feet of shute wire are uniformly wound on the bobbin which John Race holds in his hands. These bobbins ride the shuttles that speed back and forth across our looms.

We depend on John's skill and care for his share of the thousands of bobbins we use each day. Miles and miles of shute wire are needed daily to weave fourdrinier wires and wire cloth.

This is another of the many painstaking operations necessary to produce uniformly woven wire.

EASTWOOD-NEALLEY CORPORATION • Belleville, N. J.



WHAT IS PURIFIED WOOD CELLULOSE USED FOR?

Highly purified wood cellulose is one of the Country's most important chemical raw materials.

More than eighty per cent of all the viscose rayon and acetate yarns produced in this country are made from it. These yarns find their way into the daily living of everyone, in many types of wearing apparel for men, women, and children—and in a wide variety of other familiar articles.

The tire manufacturers use purified wood cellulose in increasingly large quantities in the form of high-strength viscose rayon cords and fabrics that lengthen the lives of automobile and truck tires.

Cellophane is made from purified wood cellulose, and so is another widely used transparent packaging material—cellulose acetate sheet and film.

Photographic film and paper—vulcanized fiber—lacquers—and many other related products also are made from this basic raw material.

Supplying highly purified wood cellulose produced by chemical processes is Rayonier's job. A large part of the wood we use comes from our own forest properties, which are under management that keeps them continuously productive. Research by our scientists has resulted in a number of types of wood cellulose, each developed to give best results in making the end products for which it is used.

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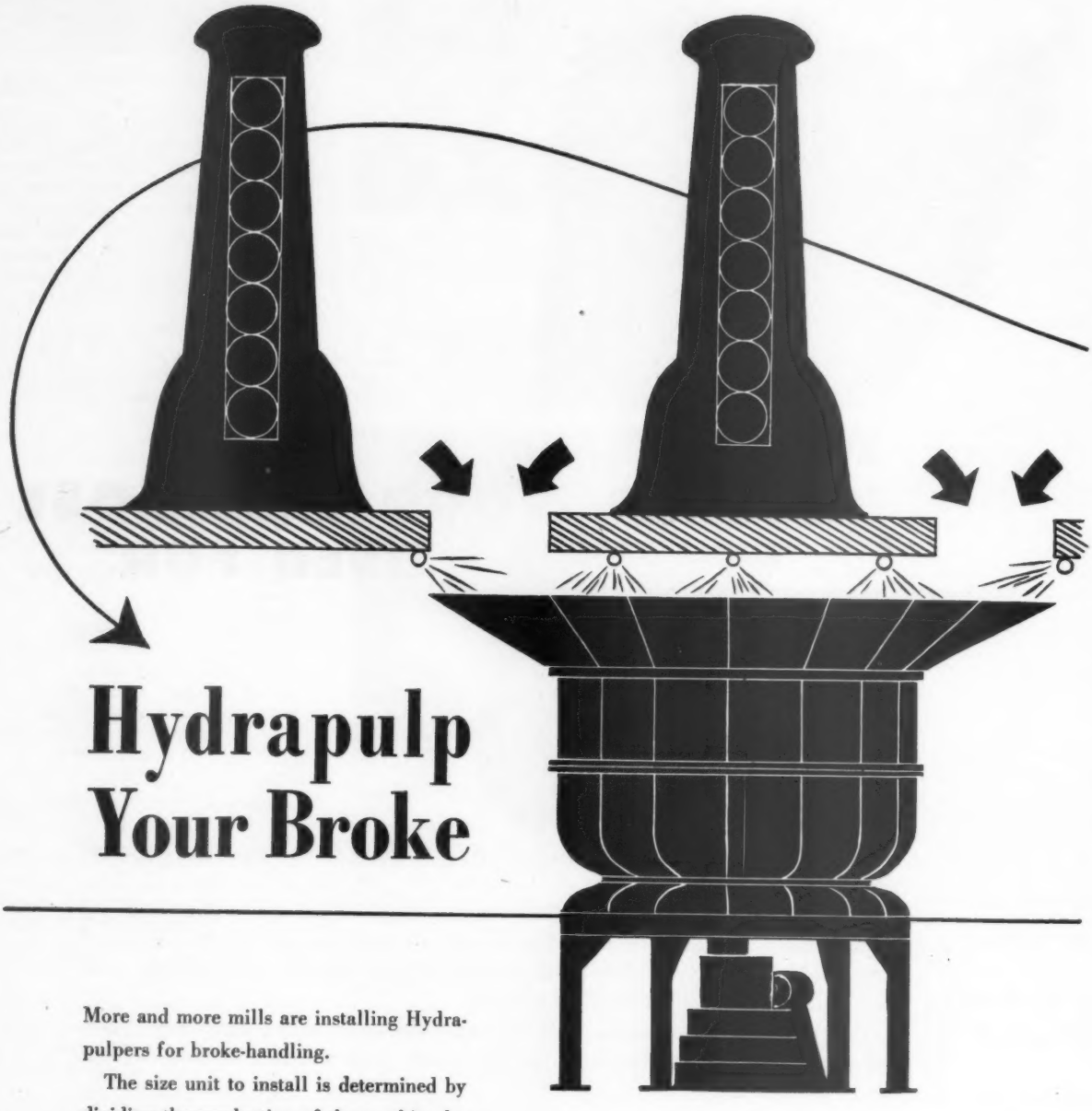
PRODUCER OF HIGHLY PURIFIED WOOD CELLULOSE for TEXTILES • TIRE CORD • CELLOPHANE • PLASTICS



Hydrapulp Your Broke

More and more mills are installing Hydrapulpers for broke-handling.

The size unit to install is determined by dividing the production of the machine by four and choosing a size capable of slushing that amount of stock in an hour—in other words, fifteen minutes' production.

As a rule, the best location is under the calenders and winder where broke from the dry end dryers and entire finishing end can be dropped to the tub as fast as produced.

Broke Hydrapulper speeds vary—slower when slushing the normal machine trim, faster when a break occurs.

This variable speed arrangement and other special features of broke Hydrapulpers gladly explained.

Shartle Bros. Machine Co.

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YOUNG MILL MEN HAVE "DAY"

Nine of Them in Coast Symposium

The Pacific Coast technical section held a symposium on non-standard testing methods at the University of Washington Jan. 18. Nine quite young men in the Coast industry, who are not in a position to assemble sufficient material for a more formal paper, took part. The idea of the meeting was to bring such young men into section activities. Dr. E. Gray King was moderator.

At the same meeting, the Coast group made plans for staging of the annual Shibley Award contest for papers by young men in the Coast mill at the next meeting April 8 in Longview, Wash.

Howard Graham, of Central Research and Technical Department, Crown Zellerbach Corp., Camas, Wash., is chairman this year of the Shibley contest and several papers already have been entered. The plan is this year to have them all presented at one meeting, when the judges will decide the winner. But the presentation of the award will not take place until the National convention to be held in Portland, Ore., next September, when the president of the national association would make the award.

After the Jan. 18 technical session the group adjourned to the Edmond Meany Hotel for dinner. Dr. Raymond B. Allen, president of the University of Washington, talked on his activities in Washington, D. C., during the past summer, when he was a member of one of the government's defense committees.

Here follow the names of participants and their subjects. We are publishing herewith most of the complete papers given at the meeting and reviews of all of them. We hope in a later issue to be able to publish one or two more of these papers.

PARTICIPANTS IN NON-STANDARD TESTING METHODS Symposium, held in Seattle by Coast Technical Group, Jan. 18.

At left, HAROLD WALL, of Longview Fibre, Coast Chairman.
In front row, center (l. to r.), GORDON CURZON, Puget Sound Pulp & Timber Co.; S. P. STRAYER, St. Regis Paper Co.; J. E. JEFFERY, Rayonier, Inc., and PORTER DICKIE, Crown Zellerbach, West Linn, Ass't. Technical Supervisor.

Second row, center, VINCENT F. FELICETTA, Pulp Mills Research, University of Washington; L. R. SHERLOCK, Fir-Tex Insulating Board Co.; HAROLD BROWN, Weyerhaeuser Timber Co.; SIDNEY SILVERSTONE, Soundview Pulp Co.; R. C. GILARDI, Camas Div., Crown Zellerbach.

At right is Dr. E. GRAY KING, who was Moderator of the meeting.

RELATIVE MOLECULAR SIZE OF LIGNINSULFONIC ACIDS

By Vincent F. Felicetta, Pulp Mills Research, University of Washington

Mr. Felicetta gave a preliminary report on recent work at the University of Washington on devising a simple, rapid diffusion method for obtaining a measure of the relative molecular weight of ligninsulfonic acids. The method would lend itself to routine operation, and once the equipment was set up a determination would require the expenditure of only 30 minutes of actual time.

DESCRIPTION OF LABORATORY CHIP SCREEN

By Gordon Curzon, Puget Sound Pulp & Timber Co.

He described a simple, novel method of vibrating a set of chip screens and discussed results obtained with this equipment. Rapid screening is attained by a combination of a vertical vibration, produced by a reciprocating piston operated by compressed air, and a slight horizontal vibration caused by the nature of the mounting. The influence of load limits, moisture content of chips and reproducibility were discussed, as well as the types of problems which can be studied through chip screen analysis.

PREPARATON AND DRYING OF LARGE HAND SHEETS

By Harold Brown, Weyerhaeuser Timber Co.

The preparation and drying of pulp hand sheets which will give test results similar to machine-dried pulp sheets has long been a problem of the pulp chemist. Mr. Brown recounted how large hand sheets are prepared in their laboratory for beater testing or chemical processing. His paper follows:

"The research department of the Pulp Division, Weyerhaeuser Timber Co., uses a great number of large hand sheets of pulp, both bleached and unbleached, for chemical testing, physical testing, samples for customers, sheets for future use, and various other requirements. It is desirable to have sheets as free as possible from curling and buckling, especially when basis weight sheets are wanted, and it was with this in mind that part of the equipment was designed.

"The equipment consists of a sheet mold and stirrer, hydraulic press, pulp dryer, press felts, frames for molding sheets and tables. This equipment is located in the experimental bleach plant.

"The sheet mold is of brass construction throughout. Wire size is 20½ inches by 21½ inches and the wire is 60-mesh stainless, with a 10-mesh backing wire. The deckle is hinged at the back and held in the closed position by two bolts. Water supplied to the mold is controlled by a Crane quick opening throttle valve. The basin below the wire has four outlets, each of which has a baffle plate over it. The water drains into a three-inch line, and drainage of the water is controlled by a three-inch quick opening gate valve.

"When sheets of a certain basis weight are wanted, wet pulp of a known moisture content is weighed and put into the mold, or we can add stock of low consistence directly from a tank to the mold. After a sheet has been formed on the wire, the deckle is opened and the sheet is transferred to a sheet of plywood on which a felt has been placed. Another felt is placed over the sheet and then the plywood, felts and pulp sheet are transferred to the hydraulic press.

"The hydraulic press is of heavy steel construction and stands about 6 feet high. It has 22½ by 24-inch platons. The power is supplied by a 5-h.p. motor and a Vickers pump and is controlled by a Vickers valve. The oil supply to the pump is contained in a tank beneath the pump. The pump delivers a pressure up to 2000 lbs. per sq. in. on the ram, or up to 125 lbs. per sq. in. on the sheet.

"After pressing, the sheet is removed from the press and placed on a drying frame. Frames are made from channel aluminum, riveted together at the corners and the end pieces are perforated for passage of air. Two aluminum rods pass through the frames to support the pulp sheet until it is partially dried. Sheets and frames are stacked alternately and after 22 sheets have been made and framed, they are ready to be placed in the dryer.

"The dryer is located in a room just off the experimental bleach plant. Storage shelves and cutting boards are also located here. The dryer was formerly a dry kiln used for drying short lengths of lumber, but has been converted for its present use. It is constructed of sheet steel insulated. It has an overall length of 9½ feet. A three-foot section houses the air filters, a 1/3-h.p. motor and fan, and the steam coils. The sheet drying section is 6½ feet long, 25 inches wide and 24 inches high. The entire front is a door, hinged at the top and has a counter balance for ease in opening and closing. Since the dryer is large enough to hold two stacks of 22 frames and sheets each, the mechanism for holding the sheets under tension while drying is in duplicate. It consists of two ½-inch steel plates 24 by 24 inches with steel rods extending from each corner of the plates, through the bottom of the dryer, into two concrete blocks. Each block is 24 inches wide, 27 inches long, and 12 inches high. A hydraulic jack is mounted beneath each block in order to raise and lower it. When loading the dryer, a block and plate is raised, and the sheets and

frames are pushed into the dryer from a table which is the same height as the bottom of the dryer. The jack is then released and the weight settles pulling the plate down on the frames. In this way, all sheets have equal weight from all sides while being dried. The normal drying time for a full load of sheets to 100% A.D. is about three hours."

FIR-TEX FREENESS TESTER

By L. R. Sherlock, Fir-Tex Insulating Board Co.

Mr. Sherlock discussed his company's experience in attempting to develop equipment for measuring the freeness of stocks of very free nature. He outlined the process used at Fir-Tex for making insulating board, and showed why it would be desirable to be able to measure the condition of the stock in the early part of the system so that the stock could be given the proper degree of refining in later steps. In their experiments they used equipment which formed a mat from stock maintained at a constant head. The weight of fiber required to change the rate of flow of water through the mat between prescribed limits was taken as a measure of the freeness of the stock. The method, however, was not sufficiently sensitive for their purpose.

NON-STANDARD METHODS OF ANALYSIS

By Sidney Silverstone, Soundview Pulp Co.

He reported on short-cut methods of analysis for magnesium, total chlorides in pulp, residual chlorine and the standardization of strong acids. These methods have been used with satisfaction and savings in time in their laboratory. In particular, the meta-bisulfite method for residual chlorine originally worked out by R. I. Thieme, technical director, of Soundview, has proven its value in mill control. The novel method for direct standardization of strong acids with potassium iodate fills a need for a primary standard for acids.

DETERMINATION OF PER CENT REDUCTON IN KRAFT RECOVERY FURNACES

By S. P. Strayer, St. Regis Paper Co.

He presented the basis for their method of calculation of the per cent reduction in a kraft recovery furnace. Abbreviated procedures were described for determining Na2S, total Na2S plus Na2SO$_3$ plus Na$_2$S$_2$O$_3$, and Na$_2$SO$_4$ which gives essentially the same results as the TAPPI standard methods but which are less tedious for daily routine testing. His paper follows:

"Under 'Standard Terms Used in the Sulphate Process' TAPPI defines reduction as: 'A percentage based on the analysis of green liquor and obtained by dividing Na$_2$S by Na$_2$SO$_4$ plus Na$_2$S, all expressed as Na$_2$O.'

"Our non-standard definition of reduction is 'a percentage based on the analysis of green liquor and obtained by dividing Na$_2$S by total sulfur salts, all expressed as Na$_2$O,' i.e., 'Na$_2$S divided by Na$_2$SO$_3$ plus Na$_2$S$_2$O$_3$ plus Na$_2$SO$_4$ plus Na$_2$S.

"In TAPPI Standard T624 are given detailed directions for the determination of all the aforementioned compounds. By the use of these procedures, one could fulfill the terms of our definition exactly, but it would be slow and unnecessarily tedious for daily routine testing.

"Our testing methods are basically the same as TAPPI, but differ in certain details which serve to abbreviate the tests.

"Below I will outline briefly the three steps for approximating our definition of Reduction:

Step 1. Determination of Na$_2$S.

"Ten mls. of filtered green liquor are titrated with an ammoniacal silver nitrate solution of 0.5167 Normality. The burette reading pointed off one place = Na$_2$S as #Na$_2$O/cu. ft. Thus, a reading of exactly 15 ml. = 1.5 #Na$_2$O/cu. ft. The Ag$_2$S precipitated in the reaction is saved from day to day. When the accumulation warrants, it is smelted with a flux of KNO$_3$ and Na$_2$CO$_3$. The recovered silver is dissolved in nitric acid and the silver nitrate is crystallized and used again.

Step 2. Determination of Na$_2$S plus Na$_2$SO$_3$ plus Na$_2$S$_2$O$_3$.

"An aliquot containing 1 ml. of green liquor is pipetted into 25 mls. of acidified iodine solution, 0.05167 Normal. (The stock iodine solution is made up with the appropriate amount of acetic acid included.)

"The unreduced iodine is back-titrated with 0.05167 N Na$_2$S$_2$O$_3$ solution. The net mls. of Iodine solution, pointed off one place represent Na$_2$S plus Na$_2$SO$_3$ plus Na$_2$S$_2$O$_3$, expressed as #Na$_2$O/cu. ft.

"This test is a fair check on the previously described argentimetric method as it must necessarily be a little higher.

Step 3. Determination of Na$_2$SO$_4$.

"Ten mls. of filtered green liquor in a beaker are diluted with water, acidified with hydrochloric acid and heated on the hot-plate. Any precipitated sulfur is not filtered off at this point as in the TAPPI standard. When the evolution of gas has ceased, an excess of BaCl$_2$ solution is added, and heating continued until the BaSO$_4$ is well settled out.

"The sulfur and BaSO$_4$ are collected in a weighed Alundum crucible using suction. Prior to ignition at 800° C., the sulfur and moisture are driven off by placing the crucible on the hot-plate. After igniting, the crucible is cooled, weighed and the BaSO$_4$ calculated to #Na$_2$O/cu. ft. The crucible is used 'as is' the next day. The crucible is cleaned out periodically, re-ignited and reweighed. An Alundum RA-360 crucible is good for several weeks, before it breaks down.

"In the foregoing three simple tests, we have accounted for virtually all sulfur salts.

"Of course, the weak-wash in which the smelt from the furnace is dissolved, is analyzed in a similar fashion, and the green liquor figures are corrected for weak-wash before the reductions are calculated. Reductions figured on the basis of total sulfur salts should range between 92% and 97% under good furnace conditions."

DETERMINATION OF HYDROGEN SULFIDE IN STACK GASES

By R. C. Gilardi, Crown Zellerbach Corp., Camas Div.

He discussed sampling and determination of minute quantities of hydrogen sulfide in stack gases from the kraft recovery furnace operation at the Camas plant of the Crown Zellerbach Corp. According to their procedure, fourteen to eighteen liters of stack gas are passed through a solution of cadmium sulfate and the cadmium sulfide precipitated is estimated volumetrically to obtain a measure of the hydrogen sulfide present. The method combines simplicity of operation and practical accuracy. His paper follows:

"Several years ago it was felt desirable to supplement the Orsat analysis with a check for hydrogen sulfide in the stack gases in determining correct kraft recovery furnace operation at the Camas plant of the Crown Zellerbach Corp. After a survey of the literature, a procedure was adopted which has proven successful, and it is presented in the hope that it may be of assistance to other mills similarly interested.

"The kraft mill stack gases in question are composed entirely of the gases from the Tomlinson black liquor furnaces. In the combustion of black liquor under ideal conditions, all sulfur compounds burn to sulfur dioxide, and there is no hydrogen sulfide present. Therefore, this analysis, combined with an Orsat analysis indicating excess air, serves as a guide in evalulating the performance of the Tomlinson furnaces. It has not been found necessary to conduct this test on a routine basis, but only as an occasional check.

"The method consists of absorbing a sample of the stack gas in a solution of cadmium sulfate (11 gm CdSO$_4$ dissolved in 200 cc. NH$_4$OH and made up to two liters) with the amount of cadmium sulfide precipitated being a measure of the hydrogen sulfide present. A sampling tube is inserted in the furnace duct to its approximate center. To it is connected a ¾-inch glass tube, loosely packed with glass wool to serve as a filter. This in turn is connected to a gas absorption bottle or, preferably, two bottles in series. It has not been found necessary to use a gas scrubbing tower such as a Mulliken bottle for this purpose, owing to the low percentage of material being absorbed. The calibrated twenty-liter water bottle serves the dual function of measuring the gas volume and controlling the sample flow rate. All connections must necessarily be gas-tight.

"To start the test, 300 cc. of the above mentioned cadmium sulfate solution are placed in the absorption bottle and the water bottle filled. Syphoning the water at a moderate dropwise rate provides a steady gas flow of single bubbles; this water rate requires hourly adjustment to compensate for changes in head. (When permitted to run for four hours, a representative sample of from fourteen to eighteen liters should be taken.) A large sample volume is mandatory because of the exceedingly small amounts of hydrogen sulfide present even under adverse conditions. About 14 to 18 liters should be taken during a four-hour period.

"At the end of the test, the water level is noted, and the absorption bottle and filter tube removed from the absorption train. These are treated individually, using the same technique in each case. The yellow cadmium sulfide from the absorption bottle is filtered and transferred to a beaker. After covering with water and adding a measured excess of iodine solution, concentrated hydrochloric acid is added slowly with stirring until the precipitate completely dissolves. The excess iodine is then back-titrated with thiosulfate and the percentage of hydrogen sulfide calculated. In the case of the filter tube, the glass wool is transferred to a beaker, and the procedure repeated."

USE OF BECKMAN FLAME SPECTROPHOTOMETER

By J. E. Jeffrey, Rayonier, Inc.

Experience with the new Beckman Co. flame spectrophotometer attachment for their Model DU quartz spectrophotometer in pulp mill analysis was carried out at Rayonier's Central Research Laboratory. This is especially convenient and accurate in the determination of sodium in small concentrations. Calcium and magnesium are also readily estimated.

INK TEST FOR BUTCHER PAPERS

By Porter Dickie, Crown Zellerbach Corp., West Linn, Ore.

No longer is it necessary for the tester to grade butcher papers in vague, general terms such as "good," "poor," etc., according to Mr. Dickie. With a Bausch and Lomb opacimeter the degree of penetration of ink into butcher paper can be measured reproducibly and the values related to the paper's behavior in service. His paper follows:

"The purpose of a meat wrap or butcher's paper is to prevent the meat from turning black. Freshly cut meat surfaces will quickly turn dark unless the surfaces are separated or covered with a substance which will absorb the meat juices but not to the extent that the paper becomes saturated with the juice.

"A good sheet of butcher paper requires, among other things, a controlled resistance to meat juice penetration. This property cannot be measured by the regular water size test alone. A fairly good indication of the ability of the paper to resist meat juice penetration is obtained by floating the paper sample on a bath of ink. The collodial nature of the ink is comparable to that of blood.

"Our standard procedure is to float a representative piece of the paper on a bath of Car-

(Continued on page 118)

A complete line of Dryer Felts for every kind of paper from finest tissues to heaviest Kraft.

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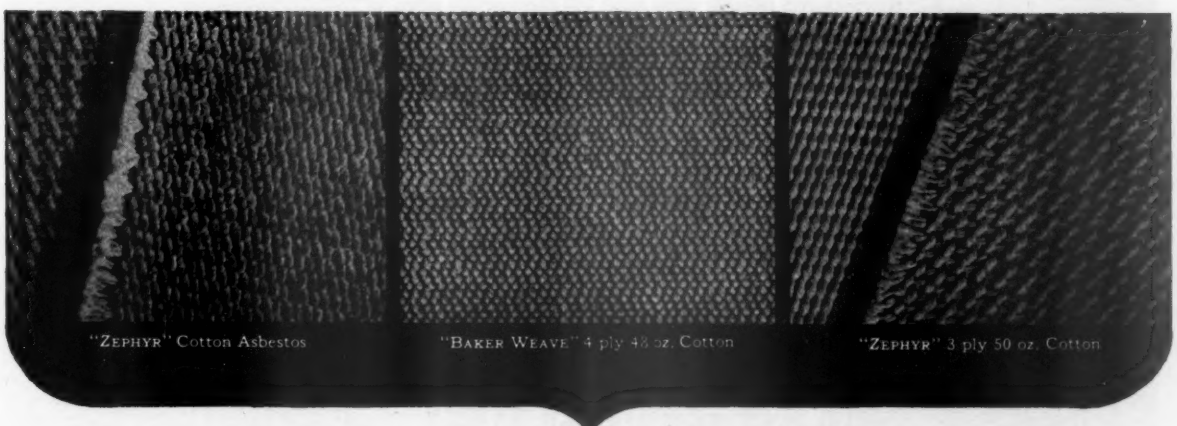

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BRANDON CORPORATION - Greenville, S. C.

BRANDON DRYER FELTS

MEDAL WINNER

(Continued from page 65)

are Hardy Ferguson mills over most of the North American continent where such mills are built—in Canada, in the Farwest (Soundview at Everett; St. Regis pulp mill at Tacoma); in the South (Crossett in Arkansas; Hollingsworth and Whitney in Alabama; Florida Pulp and Paper in Florida); and in the Midwest and in New England where Mr. Ferguson and the industry began.

International Aspects

Mr. Ferguson's work has been international. In 1927 he made general plans of a newsprint paper mill in U.S.S.R. near the city of Gorki. In 1929 he visited the U.S.S.R. for consultation about a sulfate mill at Archangel and in 1930 about design of a mill on the Kama River. On that trip he saw the newsprint mill near Gorki, for which he prepared the general plan in 1927. He found Russian engineers competent, but then with little experience in the pulp and paper industry, and they were fearful of consequences if they made errors in engineering judgment.

Mr. Ferguson was asked what he considered the most important development in the industry from 1891 until 1949. "I think unquestionably it is the improvement in the design and the quality of the construction of pulp and papermaking machinery. It was originally very crude in construction, but it has been tremendously improved in both construction and design, and this is particularly true of the papermaking machines." In many quarters Mr. Ferguson has been credited with having had much to do with the increase of paper machine speeds, but he refuses to accept this wholly, preferring to discuss only mill design. But it appears probable that his mill designs encouraged higher speed machines and in many cases made them possible.

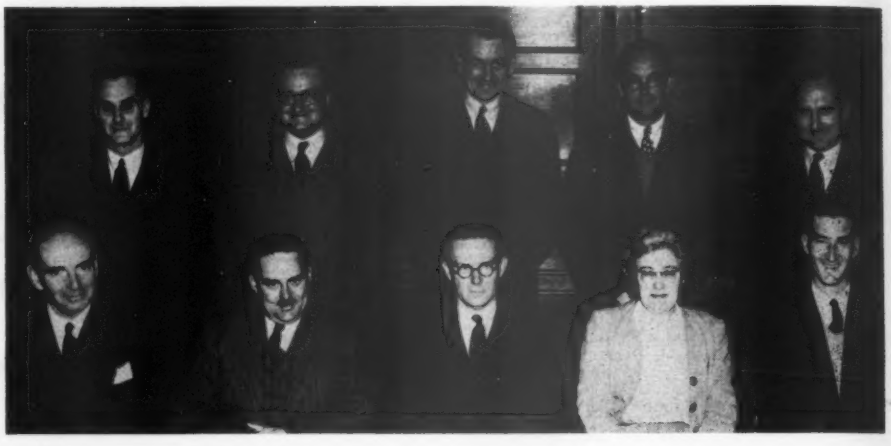
"When I began my career," said Mr. Ferguson, "all mills were largely built by rule of thumb. Today, design of most pulp and paper mills conforms to engineering practice of a high order." As to processing developments, he believes an important change is the trend away from increases of sulfite pulp production, toward development in kraft pulp. The latter, he thinks, will likely show still greater progress in the future.

Definitely Mr. Ferguson is a man who watches the future. Alert and actually youthful at 80, he is much more interested in today and tomorrow than in the long years of accomplishment which brought him the Gold Medal this month.

Front row (l. to r.) K. S. BULL, nominee of Associated Pulp & Paper Mills, Ltd., H. E. DADSWELL, Vice President and Treasurer; H. B. SOMERSET, President; C. M. WRIGHT; E. P. O'LEARY, Secretary.

Back Row: R. B. JEFFREYS, nominee of Australia Paper Mfgrs., Ltd.; W. E. COHEN; G. W. ELLIS, past President; J. L. SOMERVILLE, nominee of Australian Newsprint Mills, Ltd.; A. C. FISHER, who recently toured U. S. and Canadian mills.

The third annual meeting of the Association was held in late February in Sydney, New South Wales.



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SOUNDVIEW

High Grade

BLEACHED SULPHITE PULP

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON

JOSEPH H. THIERY (left), veteran of 22 years with Blake, Moffitt & Towne, has been appointed manager of the Sacramento, Calif., division of the company, taking place of J. H. Leatherman, who has resigned to enter business for himself, according to O. W. Mielke, President of Blake, Moffitt & Towne.

KARL R. TUTTLE (right), whose appointment as Sales Manager, San Diego Division, Blake, Moffitt & Towne, was also announced.

Kieffer Paper Mills Rebuilding After Fire

Plans are being completed for rebuilding and modernizing the three-machine plant of the Kieffer Paper Mills in Brownstown, Ind., destroyed by fire Sept. 26.

J. E. Kieffer, treasurer, who has been in paper manufacturing for 58 years, says the mill will be operated almost entirely by electricity, generated by a direct G. E. generator with direct connection eliminating many line shafts and belt drives.

The No. 3 machine is being reset on new foundations and work is about 65% completed. The company hopes to have No. 3 in operation by June. No. 1 and No. 2 machines will be rebuilt soon thereafter.

Pending rebuilding, the company is supplying most customers through Schmidt and Ault Paper Co., at York, Pa., and other mills.

Ten "Stock-Makers" ready for delivery. Five on repeat orders, five for new customers.

Wide acceptance of the "Stock-Maker" in a great variety of beating and refining applications continues to increase our volume of production.

For this we are indebted to our many long standing as well as more recent customers whom it has been our pleasure to cooperate with in their use of Mordens.

We look forward to the opportunity of assisting your mill toward further improvement in stock treatment through the use of Morden "Stock-Makers".

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PACIFIC BUILDING • PORTLAND 4, OREGON

in Canada
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in England
Millspaugh, Limited, Sheffield

COAST MEETING

(Continued from page 114)

ter's permanent midnight blue black ink held at a temperature of 70° C. After 30 minutes, the sample is removed from the ink, and the excess ink is blotted off. The degree to which the ink has penetrated the paper is then measured on the Bausch and Lomb Opacimeter as follows:

"Set the micrometer needle to zero then turn on the current and allow the instrument to warm up. Place the original paper over the hole in the instrument and adjust the reading to 100. If the paper is not bright enough to allow this, set the reading to 50—use the black body end of the opacimeter tube.

"Replace the original paper with the ink test sample, exposing the uninked side of the sheet to the instrument. The instrument reading—multiplied by two, if originally set at 50—is the B&L Ink Test.

"Several readings are made on different parts of the sample to obtain a fair average.

"We record the high, the low, and the average values on our paper test reports. The high and the low values indicate the degree of uniformity of ink penetration while the average values are used for reel to reel and day to day comparison. We find this much more satisfactory than using the terms 'good,' 'fair' or 'poor' and depending on the judgment of the paper testers to make the grading."

Publishers Paper Co. Installs New Pulp Dryer

Publishers' Paper Co., Oregon City, Ore., has recently installed a Fidalgo shredded sulfite pulp dryer. This machine, already in production, is running 25 to 30 tons of baled sulfite pulp per day. The dryer was installed as a production supplement in changing the mill over, from other grades of paper, chiefly to newsprint.

A new 80,000-lb per hour Springfield Boiler Co. (Springfield, O.) boiler has been contracted for by the Oregon City mill. This is the initial unit of a completely modern steam plant, according to Carl E. Braun, vice president and mill manager.

The 2-drum water-walled boiler will have forced and induced draft, preheated air, and cinder eliminator. Oil is to be the principal fuel, supplemented by a small amount of sawmill refuse. However, it is so designed that, in case of necessity, a change-over can be made for burning coal or large quantities of hogged fuel.

H. W. Beecher, Seattle, Wash., has been engaged as consulting engineer for the project.

Longview Fibre Presents Service Pins

At a recent pin dinner given by Longview Fibre Co., Longview, Wash., 155 company employes with 5 to 20 years affiliation were entertained at Hotel Monticello. Service pins awarded to employes represent a total of 1675 years employment with the organization.

R. S. Wertheimer, vice president and resident manager, addressed the group and presented the pins. L. C. Peabody, secretary-treasurer and director of sales, presided as master of ceremonies and Carl Fahlstrom, assistant resident manager, officially welcomed the attending personnel.

FAST WORK!

It took the champion ten rounds to put the squeeze on the challenger—ten seconds to finish him...

To make paper or board your machine must combine plenty of squeeze at the presses with high speed at the drier rolls. This is where Hamilton Felts prove themselves champions!

Equip your machines with Hamilton Felts. Speed them up. Your sheets will be dried before the bell rings.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

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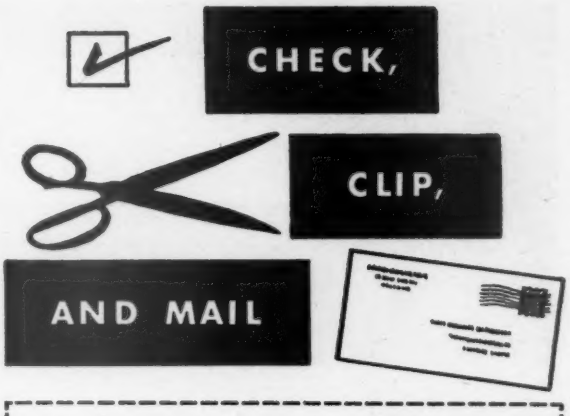

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- ☐ GROUNDWOOD BULL SCREEN REJECTS.
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- ☐ GROUNDWOOD FINE SCREEN REJECTS.
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- ☐ BLEACHED AND UNBLEACHED SULPHITE.
- ☐ SODA PULP.
- ☐ KRAFT KNOTTER REJECTS.
- ☐ KRAFT SCREEN REJECTS.
- ☐ SULPHITE SCREEN REJECTS.
- ☐ WASTE PRINTED PAPERS, WASTE LEDGERS.
- ☐ WASTE WET STRENGTH PAPERS.
- ☐ WASTE CORRUGATED PAPERS.
- ☐ WASTE PAPER IN GENERAL.
- ☐ BAGASSE FIBER.
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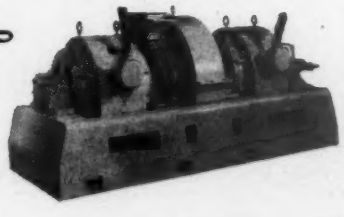

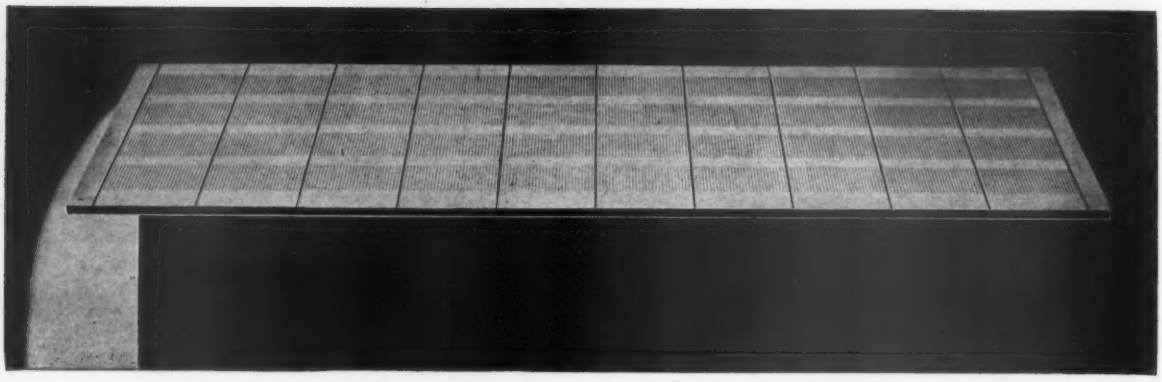

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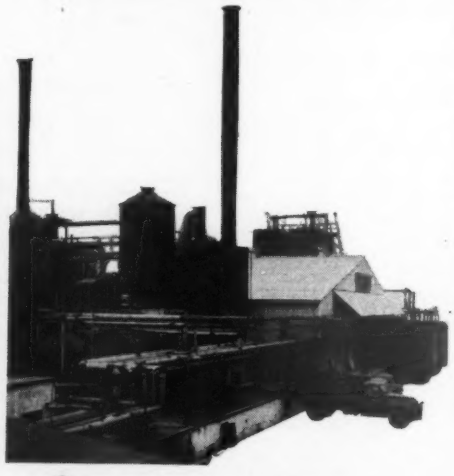

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PULP SITUATION

(Continued from page 28)

tions in recent months had little effect in increasing sales—for the reason that pulp consumers appeared to feel that these, with all other premium prices, must seek the competitive contract levels of pulps from Canada and the U. S.

It seems clear that the white pulp situation on competitive levels—as differentiated from spot sales of demand pulp—has been reasonably steady. That supply has caught up with demand is, the best observers feel, a settling situation rather than an unsettling one. What occurred in the area of "premium" prices is no reflection on the industry. It had to happen, in fact, in an industry where there are so many divergent conditions of supply and demand and, particularly, of costs. The situation was not pecular to the pulp and paper industry. Many another important industry has not yet progressed as far in the correction of distorted price structures, but the road has to be traveled by all industries — barring national emergency conditions. The exclusive estimate tables included with this discussion show clearly that the drop in premium prices is not the complete picture of the pulp situation; and, moreover, that the premium price situation never was at any time the true substance of the entire pulp situation.

F. W. Vickery, Inventor, Dies at Home in England

F. W. Vickery of Vickery's Ltd., London, who developed a number of well known devices for the paper industry, died Jan. 11 at his home in Guildford, Surrey, England.

Mr. Vickery developed the Vickery felt conditioner, the Vickery doctor and the Dirtec, built in the U. S. by Bird Machine Co., South Walpole, Mass.

During the first World War, Mr. Vickery did development work for the British government and was decorated with the Order of the British Empire. Mr. Vickery had been responsible for manufacture and sale of Bird machinery in England.

First Conference Planned On Wallboard Manufacture

What is believed to be the first conference on the subject of wallboards will be held Sept. 16 at Cambridge, Mass., under the auspices of the Northeastern Wood Utilization Council with the cooperation of Harvard University, according to William C. Shepard, president of NEWUC, of Berlin, N. H., and Dr. Robert S. Aries, technical director, of Brooklyn, N. Y.

Both softboards and hardboards will be discussed, and papers will include descriptions of commercial units operating in the U. S., Canada, and Europe.

Attendance will be limited to 75 "to insure proper discussion" and requests for invitations should be mailed to E. L. Heermance, secretary, Northeastern Wood Utilization Council, New Haven 6, Conn.

PAPER WEEK MEETINGS Stress Placed on Sales

Meeting at a period when the industry is making new adjustments, management and technical men expect a record attendance at Paper Week in New York as pulp and paper men flowed into the Waldorf and the Commodore on Feb. 20 to start the five-day sessions. Stress on sales was a dominant keynote for the first time since the war. Many technical men were in sales meetings as much or more than their technical sessions.

Following tradition, the technical meetings took place at the Commodore while the various groups making up the American Paper and Pulp Association convened at the Waldorf. Sessions were held both on Sunday, the 20th (in the case of certain segments of APPA) and on Feb. 22, Washington's birthday. Actually, some meetings of APPA occurred on Saturday, Feb. 19, but the registration desk was open Sunday, the 20th, and the remainder of the week.

The convention was highlighted by the 73rd Convention Dinner, Feb. 23, in the grand ballroom of the Waldorf and the salesmen's association annual luncheon—Feb. 22—also in the ballroom. Mr. Louis Dolivet, international editor of the United Nations World, was the scheduled dinner speaker.

An interesting change in the program schedule this year was that of the U. S. Pulp Producers Association. This year the luncheon was held on Sunday, with the executive board meeting following—and the regular annual meeting the next day (Feb. 21) followed by a luncheon.

The technical association convened Feb. 21.

MAURICE HOOPES, 78, chairman of the board of Finch, Pruyn & Co., Glens Falls, N. Y., died February 15th. Mr. Hoopes had been with the paper company since 1904 and was president from 1909 to 1942. He was also chairman of the board of the First National Bank of Glens Falls and a director of several insurance companies in New York State.

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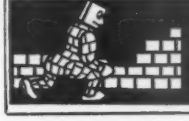
are installed in the ultra-modern St. Regis Mill, Tacoma, Washington.

WE are proud to be among those furnishing equipment for this newest mill to start operations in NORTH AMERICA.



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Booklet on Pulping History

"Pulpineering" is the intriguing title of the new Black-Clawson booklet which narrates the history of pulping paper stock from ancient to present times. The evolution of mechanical pulping is explained and illustrated. Early improvements on Holland beater are shown; then breakers, followed by continuous breaker beaters, the "Tugboat Pulper," and the "Barnacle Bill" and finally the Hydrapulper.

Copies of this interesting booklet may be had upon request from Shartle Bros. Machine Co., Middletown, O., or Dilts Machine Works, Fulton, N. Y.

Chlorinator Bulletin

Safe, accurate, inexpensive and mechanically simple are some of the features claimed for the new Rato-Chlor chlorine dispenser by its manufacturer, Fischer & Porter Co., Hatboro, Pa.

Full details are available in new bulletin 8 P-P.

LINK-BELT CO. announce that their new 8-page, illustrated book No. 2299, giving information on high-speed elevator buckets, is now available. They can be obtained from the company at 307 No. Michigan Ave., Chicago 1.

Hoar Succeeds "J. D." As Jenssen Prexy

The G. D. Jenssen Co., Inc., whose head office is in the Electric Building, Watertown, N. Y., announces that Jacob D. Jenssen has resigned as president of the company.

J. D. Jenssen has had a long association with the industry. He was the founder of his company and originator of the Jenssen acid tower system for sulfite mill production. He will continue his association with the company as technical consultant and advisor to the board.

F. J. Hoar of Watertown, N. Y., has been elected to the offices of president and treasurer and F. S. MacDonald of Montreal has been elected to the office of vice president. Mr. MacDonald is also associated with Homad Services, Ltd.

Gilbert & Nash Wire Felt Guides Now Made By Appleton Machine

Appleton Machine Co., Appleton, Wis., has been designated sole manufacturer of Gilbert and Nash wire and felt guides under contractual agreement with the Gilbert & Nash Co. of Menasha, Wis.

This line of automatic guiding equipment will continue to be manufactured under the firm name of Gilbert & Nash as a division of the Appleton Machine. There will be no change in G. & B. and C. O. Baetz will continue his duties.

Gilbert and Nash guiding equipment was introduced more than 40 years ago. Wire, felt, wet felt, dryer felt, web and special guides are custom built to specifications for each application, for any speed and for any operating condition.

The building formerly used for the manufacture of Appleton supercalender rolls, vacated in 1948 on completion of the new modern roll shop, has been refitted and tooled for machining and assembling the wire and felt guides.

O. O. LEWIS, assistant sales manager, has been promoted to sales manager of Fairbanks, Morse & Co., Chicago, it is announced by Robert H. Morse, Jr., vice president in charge of all operations. Harry L. Hilleary, for 17 years manager of the St. Louis branch, is transferred to Chicago as assistant sales manager. Donald T. Johnstone, assistant manager of the pump division, succeeds L. A. Weom, new St. Louis manager, as manager of the pump division with offices in Chicago.

At the nip in your press rolls water gets its K. O. Draper Felts are designed to knock out water — give H_2O its K. O. That's action!

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASSACHUSETTS

RALPH E. BRIGGS, *Sales Manager*

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• WALTER A. SALMONSON, *2514 Northeast 59th Ave., Portland, Oregon* • L. L. GRIFFITHS, *Jr., Kalamazoo, Mich.* •

THIS TRANSCONTINENTAL RAILROAD BOUGHT

NINETEEN BROWNINGS

IN THE LAST FOUR YEARS...OVER 100 SINCE 1906

BROWNING
LOCOMOTIVE, WAGON, TRUCK and TU-CONTROL Cranes

THE new Browning M Series Locomotive Cranes are handling all types of heavy maintenance-of-way work for this class 1 railroad.

Bridge and roadway crews call for the Browning Diesels from all points on the transcontinental line—in fact it is hard to locate the Brownings from day to day.

Combining typical Browning ruggedness, long range mobility and easy operation the M Series Diesel has the versatility to handle clamshell, magnet, hookblock, piledriver and crane work on *your* job dependably and economically.

Bulletin No. 114718 describes new Browning features of design, construction and operation. Write for it today.

THE BROWNING CRANE & SHOVEL CO.
16225 Waterloo Road Cleveland 10, Ohio

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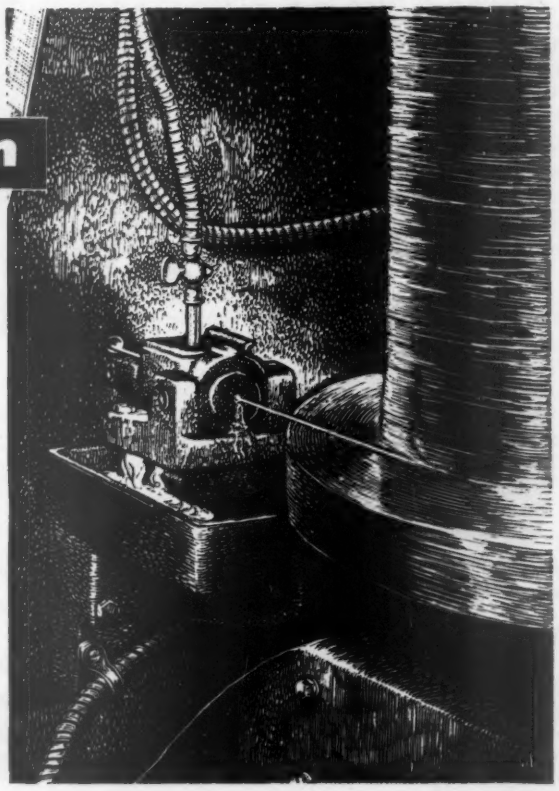
Each step in the specialized production of paper machine wires—including drawing and annealing—is performed by Appleton Wire Works, Inc, . . . another reason why Appleton Wires are Good Wires.



APPLETON WIRE WORKS, INC.
APPLETON, WISCONSIN

E-2

New Refiner Catalog

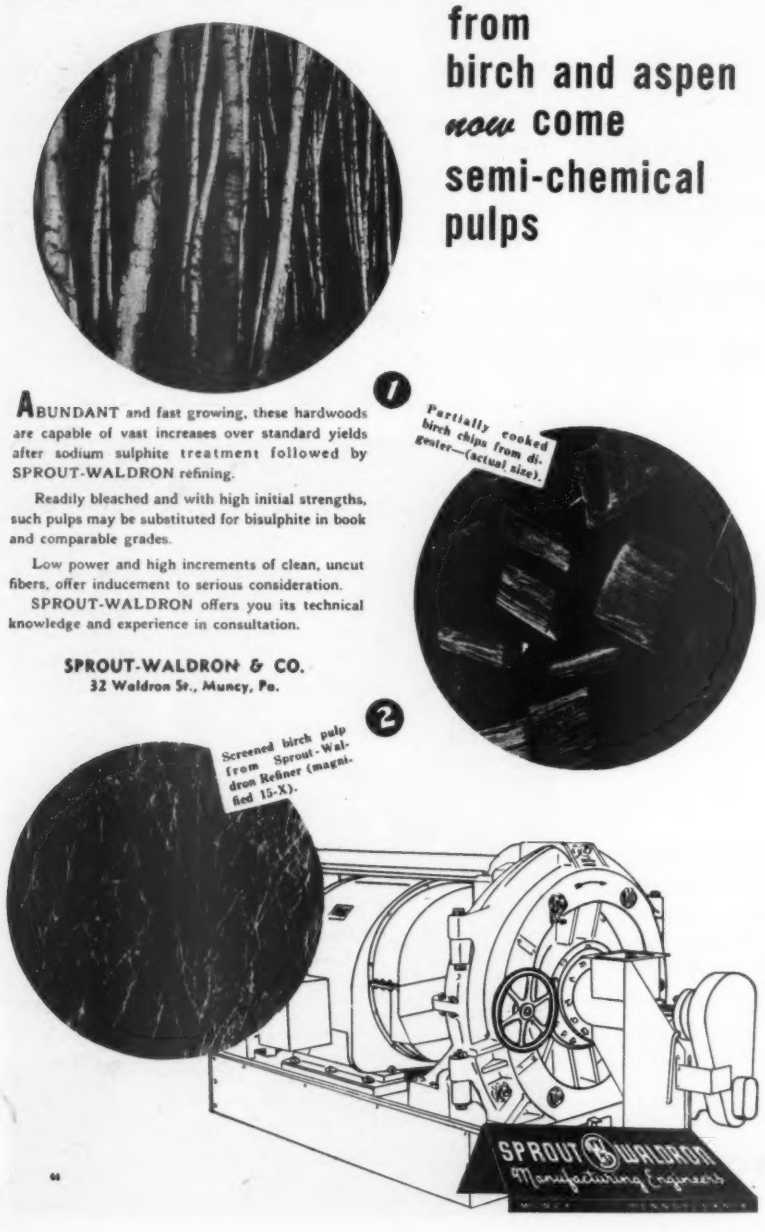
Downingtown Mfg. Co., Downing-Pa., has just issued a catalog No. 748 describing its Wiener "Pressure" Refiner. This catalog can be obtained by writing to the company.

A NEW CATALOG about their 25-ton diesel locomotive crane is now available from the American Hoist & Derrick Co. by writing the Advertising Department, American Hoist & Derrick Co., St. Paul 1, Minn., asking for Catalog No. 600-L-5. This illustrates the crane in action in magnet, bucket, hook and pulpwood work.

New Appointments Announced by SKF

Stuart H. Smith, as new Cincinnati district manager of SKF Industries, Inc., and changes in personnel of other district offices of the ball and roller bearing firm have just been announced by R. R. Zisette, general sales manager. Mr. Smith, who joined SKF in 1934, has been assistant district manager of the Detroit office since 1944.

Field representatives named were: C. N. Benson and D. B. Eden, Boston; A. R. Ehrnschwender, Cincinnati; J. T. Paradise, Atlanta, and G. L. Hansen, Portland, Ore.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birch and aspen
now come
semi-chemical
pulps
ABUNDANT and fast growing, these hardwoods are capable of vast increases over standard yields after sodium sulphite treatment followed by SPROUT-WALDRON refining.
Readily bleached and with high initial strengths, such pulps may be substituted for bisulphite in book and comparable grades.
Low power and high increments of clean, uncut fibers, offer inducement to serious consideration.
SPROUT-WALDRON offers you its technical knowledge and experience in consultation.
SPROUT-WALDRON & CO.
32 Waldron St., Muncy, Pa.
1
Partially cooked birch chips from digester—(actual size).
2
Screened birch pulp from Sprout-Waldron Refiner (magnified 15-X).
SPROUT WALDRON
Manufacturing Engineers

Lockport Felt Elects Officers and Directors

At the annual meeting of Lockport Felt Co., Newfane, N. Y., the following were elected directors: William H. Lee, Elizabeth M. Lee, Raymond J. Lee, Lester D. Carner, William W. Campbell, Jr., William E. Miller, Bertram A. Audley, Lester J. Robinson and Roy T. Yates. Officers elected were: William H. Lee, chairman and president; Raymond J. Lee, executive vice president; Elizabeth M. Lee, first vice president; Bertram A. Audley, second vice president in charge of sales, and Lester D. Carner, secretary, and Raymond J. Lee, treasurer.

Black-Clawson Licensee For Kohler Equipment

Black-Clawson Co. is now exclusive licensee for manufacture and sale of Kohler System Co.'s equipment throughout the world except Canada. This equipment consists of apparatus for winding and unwinding web materials under controlled tension, without stops or slowdowns for roll changes.

Manufacturing of Kohler equipment will be done by the Dilts Division. As heretofore, the Kohler System line will be available for application to printing presses, supercalenders, coaters, paper machines, etc., of all makes.

The entire engineering organization of the Kohler System Co. will be moved to Dilts Machine Works, Fulton, N. Y.

"KARBATE HEAT EXCHANGERS,' a new brochure by Foster Wheeler Corp., N. Y., shows the design and service of four types of heat exchangers using "Karbate" as protection against corrosive fluids and gases. Physical properties of "Karbate" and a table giving its resistance to a large number of acids, salt solutions, alkalies, organic compounds, and gases and mixtures are also shown. The brochure has many illustrations of heat exchangers designed by Foster Wheeler.

ROBERT W. WOLCOTT, president of Lukens Steel Company, Coatesville, Pa., forecasts another year of high production and good business in his annual report to stockholders. This is Lukens 138th year. "While the outlook for the entire year is viewed with some hesitancy, if present conditions hold, the 1949 fiscal year will be another good one for us." In 1948 sales were $61,460,919, highest volume in history of the company.